

ALL-IN-1 • Office & Information Systems

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DECgraph	DECWORD	LSI-11	TMS
DECmail	DECWORD/DP	LXY	VAXcluster
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DECset	GOLD KEY	P/OS	VT
DECslide	HSC50	Professional	WPS-8

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PART I

Preface

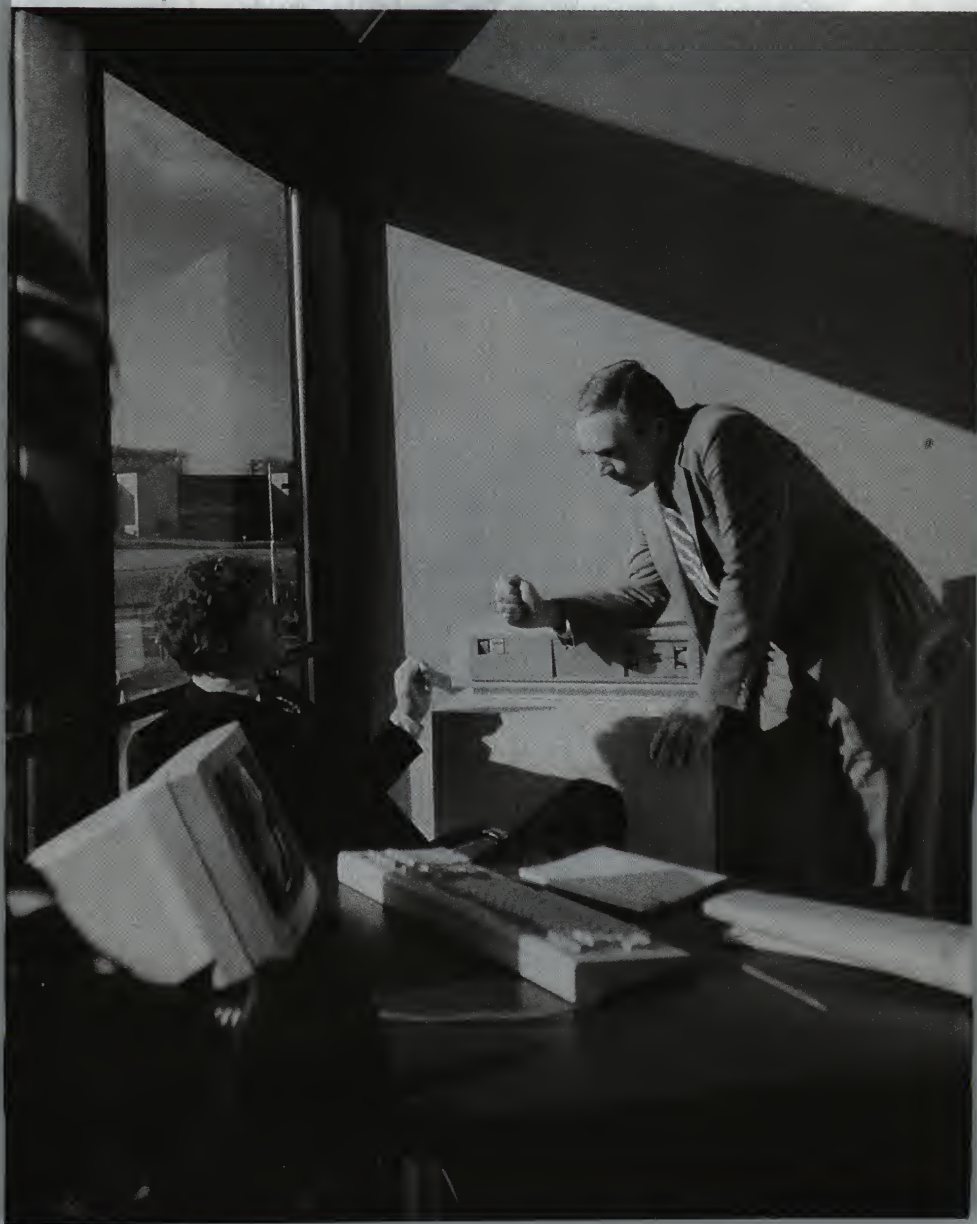
This handbook is a reference guide that focuses on Digital's Office and Information Systems. Written with both evaluators and users in mind, this handbook will help you understand our Office products and choose the system that is right for you.

Naturally, we can't tell you everything about all of our products in a single book. At the end of the book however, is an Appendix called Additional Literature which lists other books that you can order.

A postage-paid *Reader's Comments* card is located at the back of this handbook. We hope you will take the time to fill it out. Your suggestions will help us to continue presenting literature that meets your needs.

Plain Talk About Office and Information Systems

When it comes to office and information systems, the plain talk is that the technology is out there, but it's not always easy to use. The key is to find a system that works for you, not the other way around. It's about finding a solution that fits your needs, not just the latest and greatest. The technology is there, but it's not always easy to use. The key is to find a system that works for you, not the other way around. It's about finding a solution that fits your needs, not just the latest and greatest.



In the past few years the computer industry has been going through a period of tremendous activity. Under the general title of "office automation," there have been a number of important developments in new technologies and new applications. To appreciate today's office and information systems, it helps to have some background.

An Office and Information System Ties Together the Capabilities of Many Different Types of Technologies.

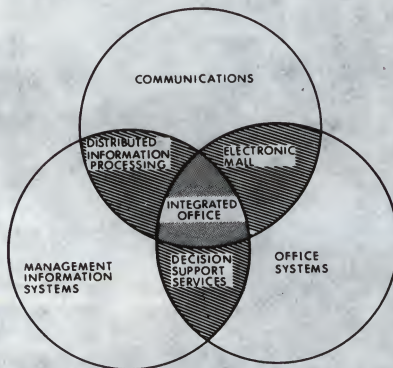
An office and information system is not a single product or group of products, but rather a capability that allows you to tie together many different types of technologies—management information systems, communications systems, and office—systems into an integrated and easy-to-use system that's accessible from a single computer terminal.

Office and Information Systems Are Not All Alike.

To be effective, an office and information system must allow you to purchase only those products that meet your business needs, and that work together as part of a total information system.

Not all systems are alike. Some offer more flexibility than others. As you will see, Digital's approach differs in style, implementation, and technology from the approach followed by most other computer manufacturers.

The Digital approach offers a unique combination of architectures and standards that allows users of the system to work together, on a small scale with few capabilities, or on a very large scale with many different capabilities. The picture below will give you a better idea of what we mean.



As you see in this diagram, the goal of office and information systems is to integrate management information systems, communications systems, and office systems into an integrated office solution.

As you will see, Digital's ALL-IN-1 Office and Information System gives you the capability to make better use of your existing computer systems by integrating them into a customized information management system. As new technologies evolve, they work within the framework of the Digital ALL-IN-1 solution because they're designed according to the standards and architectures that make up the system. This architectural plan is what makes Digital a unique computer vendor.

You Always Get an Office and Information System, No Matter What System You Buy from Digital.

If you purchase a small personal computer with some applications software, you also receive Digital's Office and Information System. That's because both the hardware and software have been engineered to work as part of Digital's powerful information management architecture.

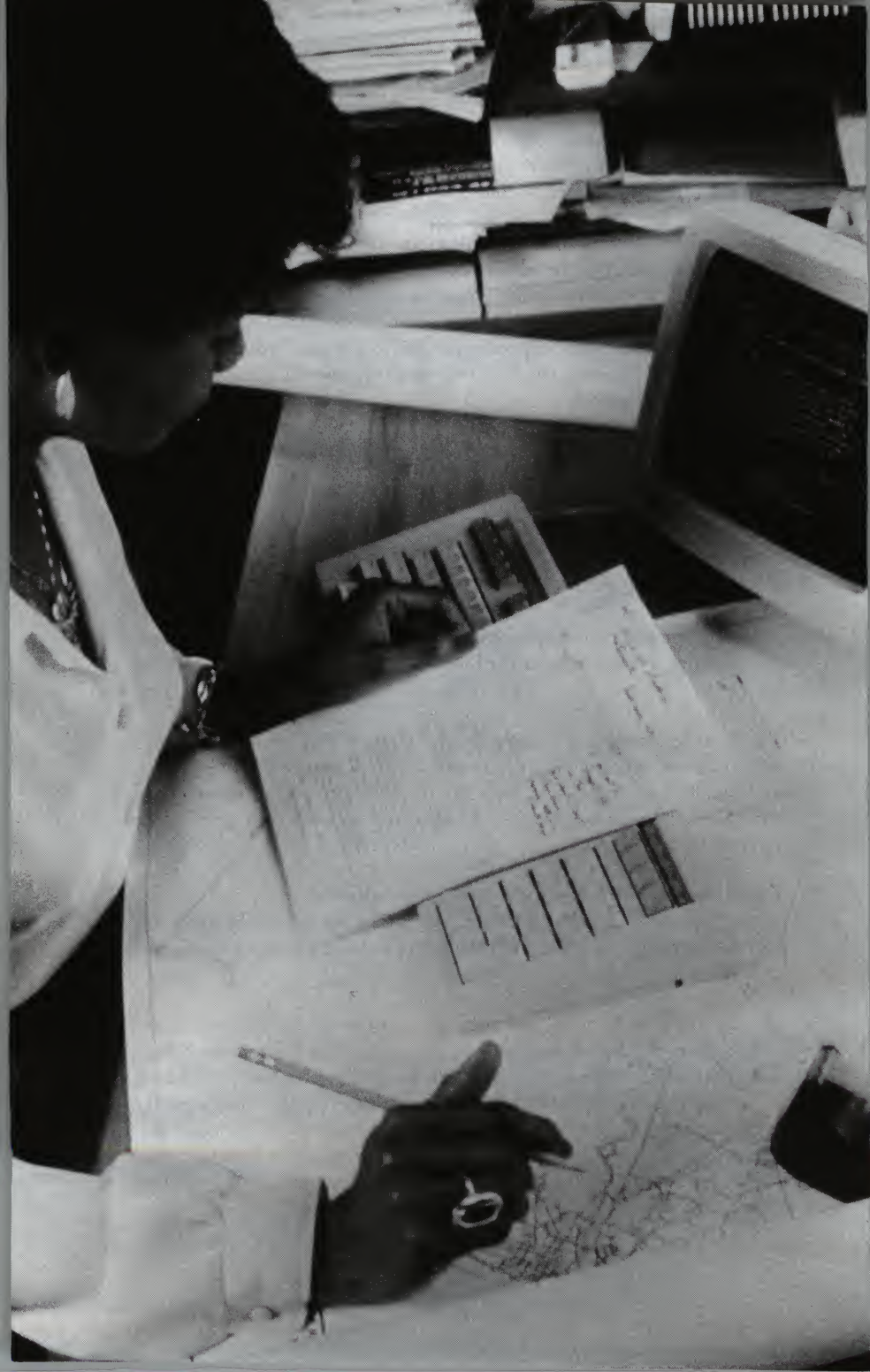
All Digital computers are engineered to conform to an overall product strategy that recognizes that products need to work together to be useful business tools.

The most important thing to know about Digital's product strategy is that it is based on a real understanding of customer needs. That understanding allows us to build a computer architecture that distributes computer resources throughout the organization and links users together who exchange and share information from every desktop to the data center.

Digital Designs Flexibility Into Every System it Builds.

Digital's unique approach to designing products has its roots in the company's heritage as the inventor of the minicomputer and the pioneer of distributed processing.

Our approach has been to create architectures that set forth standards and specifications for the fundamental jobs of computers—data storage, access, and transmission. Today, Digital products create the most flexible information processing environment available. Our architectures provide the design principles by which all of our individual products are built. That means that all our products are designed not only to perform their own particular functions, but to work with other Digital systems and those of other manufacturers.



In effect, our architectural approach gives you an information management system with flexibility unmatched in the industry. And this higher level of flexibility minimizes the risk of the wrong computer investment. You can be less detailed in your planning of specific systems investments and less committed to a fixed course of action because Digital systems are built to adapt to changing technologies and organizational structures.

You Can Make Your Investment in a Step-Like Fashion

You can start small with systems in one or two places doing specialized jobs. Then, as your needs, resources, or inclinations direct, your systems can be expanded or changed.

You Can Make Your Investment All at Once

You can adopt a philosophy that has elements of both a centralized and a decentralized approach. Your operating departments can purchase systems for their own needs and control these systems locally. At the same time, you can ensure the consolidation and sharing of data that is vital to the effective operation of the company as a whole.

Digital's Products Span Individual, Departmental, and Organizational Boundaries.

Digital's specific products span a broad range of personal, departmental, and organizational computing needs. But regardless of what product you purchase, you have the satisfaction of knowing that it will have the flexibility built into it to make use of the capabilities of other systems in the organization, Digital as well as other manufacturers.

At the personal level, Digital offers a variety of workstations that suit the profession-specific needs of individual users and provide single-terminal access to larger departmental and corporate computer resources.

At the departmental level, a department manager can purchase a VAX system for users in the manager's department so they can become more productive as a group. Besides the benefits of the VAX system, the group also gains the resources of an entire office and information system because, as we said before, Digital's product architecture allows its products to meet industry standards for information sharing and exchange with other systems. Besides performing their own jobs, individuals are now in a position to take advantage of fast inter-group and intra-group communications through the use of corporate electronic mail, word processing, and other corporate capabilities regardless of their location. The departmental system can become part of a local network of systems giving its users access to information located on computers that are on other floors of the same building or in other buildings.

Integration of Computer Resources Is the Key to Success in the 80s

Today, most of us are overwhelmed by information. Our filing cabinets are overflowing with reports, memos, letters, and supporting documents. Some of the data we need may be in a computer. But very often we're not quite sure if that data exists or if it is available. And when we finally find where the information is, we can't get it as quickly as we need it, nor is it organized in the way we want it.

That's where flexibility enters the picture. To get the most out of any office and information system, you need a system that:

- Works the way you work on many jobs with constant interruptions
- Doesn't require you to be a computer expert or to memorize a lot of complicated procedures
- Ties you into all the information resources you need from a single terminal on your desk without worrying about where the information is stored or how to get to it
- Lets you get the information you need, when you need, and in the form you need it

In order to do all this, the system that you choose must address a variety of needs in areas such as data processing, communications, text processing, graphics, and voice from a single terminal that's easy to use. This is how Digital's ALL-IN-1 Office and Information System is unique; it addresses all these needs.

As you will see in the next section, ALL-IN-1 is a powerful, easy-to-use office and information system that you can tailor to your unique needs. Whatever you have to do in your office, ALL-IN-1 can help you whether you've developed your own programs, obtained them from Digital, or purchased them from another company. ALL-IN-1 runs on Digital's high-performance VAX family of computers. It's engineered so that a complete range of office information functions is at your fingertips, even if you're a first-time user.

• A Closer Look at Digital's All-In-1 Office and Information System

All-IN-1 Is a Powerful Office and Information System

Digital's ALL-IN-1 Office and Information System has a menu of applications that can be accessed from a Digital terminal or personal computer. These applications include word processing, electronic mail, desk management, and integrated publishing, as well as data processing applications that are unique to the user.

An ALL-IN-1 Office and Information System lets you tailor it to your unique needs. Whatever you have to do in your office, an ALL-IN-1 Office and Information System can help—whether you've developed your own programs, obtained them from Digital, or purchased them from a third party.

ALL-IN-1 applications run on the high-performance VAX family of computers. The ALL-IN-1 Office and Information System is engineered so that a complete range of office and information capabilities are available to you from a single menu on your screen.

All-IN-1 Can Be Customized to Meet Your Needs

Every business is different and so are the people who work there. Our ALL-IN-1 Office and Information System has been designed with that thought in mind.

Any of the screens, menus, and forms can be tailored to fit your specific needs. Using some simple tools, you can customize your ALL-IN-1 Office and Information System to work the way you work, to make ALL-IN-1 a personal office tool.

With an ALL-IN-1 Office and Information System you're not restricted to using a system designed by someone else to do just any job. You can design your system to meet your needs through a customized menu option.

Through your ALL-IN-1 menu, you can also add additional applications or programs specifically designed to address your business needs. These programs can be provided by Digital (both standard product and custom-written applications,) by users, or by third-party software vendors, and can be integrated into your ALL-IN-1 Office and Information System capabilities.

• Getting Started with All-IN-1

If your planning to buy a word processor, then you should consider an Office and Information System like ALL-IN-1. There's really no difference between the two except how they are used. And that is largely a matter of what software is available with the system you buy.

Remember, you always get an Office and Information System no matter what you buy from Digital. That's because both the hardware and the software have been engineered to work as part of Digital's powerful information management architecture. That means that all our products are designed to not only perform their own particular functions well, but also to work with other Digital systems and those of other manufacturers.

You can start with a small system that's meant to support a few professionals. Later, if you want, you can link that small system into other systems throughout the organization.

How Do You Choose the Right System for You?

The first decision you have to make is between a standalone system or a system that can be shared by a number of people. The price differential is not what you might first expect.

A shared system with four terminals may cost you no more than four standalone systems. But when you start comparing costs, be sure that you are comparing equal alternatives. You have to ask yourself such questions as: How much data storage do I need? Does everyone keep their own files or do I need some sort of a file system that can be shared? The important thing to remember is that you have a choice. You can buy a standalone system or systems, or you can buy a single system to serve a number of people.

As we've said, it's relatively easy to get started by buying a small Office and Information System to improve personal or departmental productivity. But the real payoff comes when you start linking a number of Office and Information Systems together and connect them to other computer systems throughout the organization.

That's where an Office and Information System from Digital can make all the difference. Digital gives you the kind of networking capabilities that will enable your computer systems to work with each other.

...These capabilities support direct file transfers from one computer to another;

...They allow you to develop an applications program on one computer and transfer it to another computer at another location; and they give you direct access to all of your computer systems, not just the one to which your terminal happens to be connected.

All-IN-1 Gives You Single Terminal Access

From a single terminal, you have access to every ALL-IN-1 Office and Information System feature. You can use whatever office workstation best suits your needs—video terminals, printer terminals, specialized graphics terminals, Digital's new DECmate III, Rainbow 100, and Professional 300 Series personal computers, or even terminals from other computer manufacturers, thanks to Digital's vendor interconnect capability.

Something unique about an ALL-IN-1 Office and Information System is that it can be implemented on a small computer, on a cluster of large computers, or on a local or wide-area network made up of individual systems and clusters of systems.

Such a network does more than just link computers together. It links users together so they can exchange and share information. This allows any individual on the network to use the full resources of the network to solve the problem at hand.

As you will see, the Digital approach makes it easy for users to get the information they need, throughout the organization, without having to know which computer has the needed information or how that information is organized. The key is developing office systems that link individuals and departments throughout the organization.

ALL-IN-1 Uses Easy-to-Learn, Easy-to-Use Menus

Designed in cooperation with some of our largest customers, ALL-IN-1 Office and Information Systems have been designed to meet the needs of a variety of different industries and occupations.

Regardless of which workstation you choose, all the information you need will be available to you at your fingertips through choices on your ALL-IN-1 Office Menu. To use the ALL-IN-1 Office Menu, you simply select one of the items on the menu.

If you need help, it's only a keystroke away thanks to the HELP feature on ALL-IN-1. This HELP feature gives you as much or as little help as you need—either short reminders or detailed descriptions.

Included in the ALL-IN-1 Office Menu are a full range of information-handling features, including those for information management features, decision support features, word processing, electronic mail, graphics capabilities, and desk management features such as electronic appointment schedulers and reminders.

All-IN-1 Makes It Easy to Get And Manage Information

An ALL-IN-1 Office and Information System makes it easy for you to get and manage information when and how you need it. Many operations, like automatic cross-referencing, happen without your intervention; others, such as document searching, are completely under your control.

The ALL-IN-1 unique file cabinet approach simplifies your document retrieval. And if you need to get information that's located on another computer or database, you can do it with a single command to your ALL-IN-1 Office and Information System. You can find out what's happening with your favorite stocks, key companies, competition, or other key economic indicators, for example, by calling up Dow Jones News Retrieval Service. You can access this database service, one of the most comprehensive of its kind in the world, from your computer terminal.

But it doesn't stop there. Through Digital's comprehensive networking capabilities, you can store data on other systems, even other manufacturers' systems. Then, you can record all or part of the information in an ALL-IN-1 Office and Information System document you've already created.

To access your own databases or files, you need only select an option from your customized ALL-IN-1 Office Menu. Digital's powerful VAX DATATRIEVE software lets you retrieve or modify data files quickly and easily. With a few simple commands, you can find, sort, update, print, create charts and graphs, and even insert the information into a document being created with word processing.

All-IN-1 Gives You Document Processing Tailored to Your Needs

The ALL-IN-1 Office and Information System's word processing power means easy document creation, editing, printing, and deletion. It lets you create and edit files, memos, letters and other documents.

If you need help or instruction, HELP is there to assist you. If you need spelling help, the ALL-IN-1 Office and Information System provides it. DECspell spelling verification and correction software, based on the *American Heritage Dictionary*, highlights incorrect spelling and capitalization and presents options. DECspell can find the correct word for one spelled incorrectly, as well as interpret typical misspellings and character transpositions. DECspell's dictionary even lets you add words unique to your company or industry.

Digital also offers a technical word processing capability that lets you create and edit scientific characters with full-screen equation editing, column manipulation, dual-font printing, and footnoting.



If you already use one of Digital's word processors like the DECmate, you can increase its power by connecting it to an ALL-IN-1 Office and Information System. Then, you can use your ALL-IN-1 Office and Information System's document exchange capability to transfer reports and memos. You can create a document on DECmate, transfer it to your ALL-IN-1 Office and Information System, and include a spreadsheet, report, or graph. Or, you can create a draft with an ALL-IN-1 Office and Information System and send it to a DECmate for a final edit.

All-In-1 Makes it Easy to Work with Numbers

Engineering mathematical calculations, financial calculations, spreadsheets, and financial modeling are just some of the capabilities available with an ALL-IN-1 Office and Information System.

An ALL-IN-1 Office and Information System has a built-in Desk Calculator that's convenient and easy to use. Available in both an engineering and financial version, Desk Calculator, a part of ALL-IN-1 Desk Management, has all the features you would look for in a separate, desktop calculator plus the added advantage of being an integrated part of an ALL-IN-1 Office and Information System.

You can use the calculator whenever you're using the ALL-IN-1 Office and Information System, whether you're preparing a document, answering your mail, or using any of the other ALL-IN-1 features. You can even insert the results of any calculation into your document or mail message, without retyping the results. And the desk calculator is available when you need it, even when you're performing another task.

The Desk Calculator provides the standard arithmetic functions (add, subtract, multiply, and divide) plus decimal control, square roots, exponentiation, full trigonometric functions, and a formula feature.

ALL-IN-1 Office and Information Systems also offer a variety of spreadsheet capabilities that are easy to learn and use, such as DECalc and Multiplan. DECalc and Multiplan let you create, edit, and manipulate models that provide the basis for your financial plans and budgets. They give you the mathematical tools you need to plan, budget, forecast, and analyze financial plans and solutions. By performing "what if" calculations, they give you the ability to make faster, better decisions.



All-IN-1 Exchanges Messages with Pacesetting Electronic Mail

Digital has designed and built an electronic mail system that sets the standard for the industry. Based on strong network and communications capabilities, this electronic mail application can be designed as an option on any ALL-IN-1 Office and Information System menu.

Electronic mail lets you create and exchange messages, memos, and documents with other system users. You can send vital operating information to others instantly when they need it, and they can respond just as quickly. When new mail arrives, the system notifies you on your terminal screen. The system uses distribution lists to send memos. You can even defer (or schedule) message transmission by specifying the delivery date and time.

All-IN-1 Adds a Visual Dimension through Graphics

The ability to represent information graphically is a key office capability. Graphics provide an easy-to-read, often dramatic way to represent information graphically is a key office capability. Graphics provide an easy-to-read, often dramatic way to analyze and present information. With an ALL-IN-1 Office and Information System, you can select the graphic capabilities that best suit your needs. For example, DATATRIEVE and DECgraph, two graphics products, can be used interactively and also can be called by applications programs when you need to access or format information. These products will interpret raw data and generate highly legible graphics displays of that information, including line charts, pie charts, or scattergrams.

For visual aids, there's DECslide. DECslide graphics software allows you to produce slides, transparencies, or paper copy that resembles the best from a professional art department. With a 35mm camera, presentation-quality slides can be quickly and easily generated.

For standard financial data, there's FINGRAPH. Particularly useful for representing comparative financial information, FINGRAPH displays bar charts that show all changes resulting from a change on one parameter.

Digital: A Communications and Networking Leader

Digital is an established leader in communications, networking, and distributed data processing.

To start with, Digital has the software you need to join all of your Digital computer systems together in an effective computer network. Information is made available when, where, and as needed. And, to get there, you can use a broad range of private and public communications facilities, such as the telephone system, microwave relays, private lines, and public networks.

For example, Digital networking software includes a Packetnet Interface that allows your computers to communicate over Telenet and other public networks. Digital also offers an SNA gateway that allows you to link a network of Digital systems to a network of IBM computers. In addition, Digital offers a variety of networking products that allows individual Digital systems and terminals to communicate with individual IBM systems.

Digital is one of the leaders in the development of local area networks, in which a single coaxial cable provides an information backbone for an entire building or office complex. Digital was one of the original sponsors and developers of Ethernet. With Ethernet you can literally plug Digital systems into a local network when and where you need them. Ethernet provides the high-speed local communications medium. And Digital software provides the high-level protocols required to support computer-to-computer networking functions.

Digital Can Help You, Your Department, and Your Entire Organization Run More Efficiently

In this chapter, we've described a variety of hardware and software products that Digital can provide to meet your informational needs at the personal, departmental, and organizational level.

We've described how Digital's ALL-IN-1 software is the key to developing a true Office and Information System by allowing you to:

- ... Take programs that run on departmental computers and programs that run on personal computers and put them together on a single-user menu.

- ... Provide a single set of user commands.

- ... Enable you to move files from one program to the next.

- ... Take a memo from electronic mail and incorporate it into a word-processing document.

- ... Access information stored on a remote computer and forward it via electronic mail to another location.

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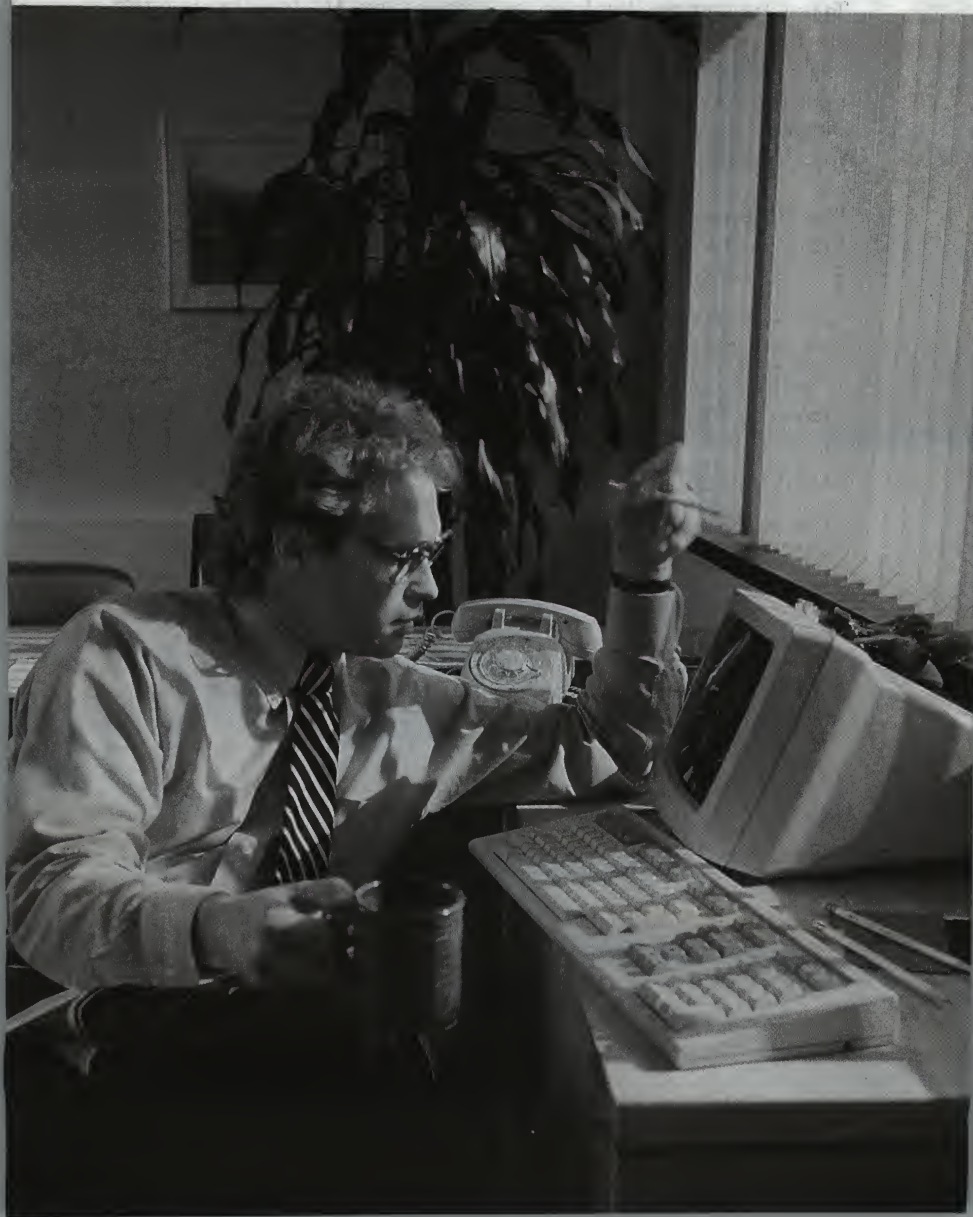
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PART II

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Chapter 1 • Office Capabilities

Section 1 • The User Interface



The User Interface is that part of the ALL-IN-1 product that you see. It provides a structure and language that lets you and the computer interact. The User Interface is a combination of hardware (such as a video display and a workstation keyboard) and software (menus, prompts, and commands). All of that provides you with an easy way to access the computer's capabilities.

To you, the user, the User Interface is the product. ALL-IN-1 User Interface products provide access to all of the capabilities you need to do your job from a single workstation. You can choose the office workstation and combination of applications most suited to your specific needs. This combination of hardware and software products can provide a unique solution to every customer's specific business problem.

Shared Systems

From an office workstation connected to host computer systems, ALL-IN-1 users can access:

- Office applications (word processing, electronic mail, spreadsheets, graphics, desk management tools, and more)
- Data Processing capabilities (information management, database query and reporting, languages and programming tools). All of this computer power is available from a single, simple menu system.
- On the VAX, Digital offers ALL-IN-1 Office Menu.
- On the PDP-11, Digital offers MENU-1.
- On the DECSYSTEM-20, Digital offers OPUS-20.

Team Computing

The PDP-11 series of products offers a variety of office applications to fill the needs of the team computing environment. These applications include:

- Word processing
- Electronic mail
- Calculation and modeling
- Filing and retrieval

Using MENU-11, or Digital's forms management system and information management tools, application programmers can build an office-oriented user interface.

Personal Systems

From each of Digital's personal computers, you can run the software packages designed for your system, as well as access any of the capabilities provided on a host office system.

The DECmate II is a multifunctional office workstation designed to run word processing, personal computing, and business-spending applications. It is a fully compatible VAX, PDP-11, or DECSYSTEM-20 office workstation. The Easycom and Master Menu facilities provide the DECmate II user with access to any, local or remote, application or information using a single command. With its optional CP/M card it can also run industry-standard applications.

The Professional office workstation provides a variety of office applications and an ideal environment for the development and execution of specific user applications. It has a comprehensive menu system that provides a full complement of user interface facilities in a customizable environment.

The Professional is also a personal minicomputer. It has been designed to take advantage of the same file system and networking architecture as much larger systems. It is also fully compatible with Digital's ALL-IN-1 Office System.

The Rainbow is a versatile personal computer that can double as an office workstation. It provides transparent access to both 8-bit and 16-bit industry-standard applications. It is also fully compatible with Digital's ALL-IN-1 Office System.

Each of these office workstation's capabilities are discussed in greater detail in the section entitled "Office Workstations" in the Systems, Office Workstations, Storage, and Printers chapter of this book.

The ALL-IN-1 Products

The ALL-IN-1 products were designed for the office environment. Their User Interface characteristics differentiate them from products designed for other types of users or environments (program development, for example). ALL-IN-1 User Interfaces provide:

- Framework for a total office solution
- Integrated applications environment
- Adaptability to the user's needs, workstyle, and environment
- Ease of use for all levels of computer experience

Framework for a Total Office Solution

The ALL-IN-1 products give you the ability to perform office functions, data processing, and communications from a single terminal and a single menu. You are given a choice of selecting the office workstation and combinations of capabilities (local and host-based) best suited to your needs.

ALL-IN-1's capabilities can be expanded and customized. Your system can be tailored to include software to meet the needs of a range of business and/or profession specialties, as well as your own needs.

It can be customized to include:

-
- Additional Digital-provided products
 - Third-party and OEM software products
 - Custom-written software packages (customer-written or Digital-provided)
-

More capabilities are available to you through office networks. You can have transparent access to applications and data anywhere in an office network.

ALL-IN-1 is flexible. It can be changed as your needs change. As new user interface technologies or innovations (like voice) become available, they can be easily incorporated.

Integrated Applications Environment

ALL-IN-1 menus and commands are consistent. Applications (office, data processing, or customer-written) all look similar to the user. The User Interface provides consistency across applications and systems. Standards have been set up, to develop multiple applications can be developed that appear and operate in a similar manner—an obvious benefit to the user.

ALL-IN-1 applications work together. ALL-IN-1's capabilities work together the way people in a department work. Information is moved easily from one application to another, or from one office workstation to another, without complicated procedures or file compatibility problems.

ALL-IN-1 office workstations provide integration. Local applications and host applications functions similarly. The same keystrokes and commands are used on both the office workstation and the host computer.

ALL-IN-1 Is Adaptable to User Needs, Workstyle, and Environment

Customization

The functional capabilities of the ALL-IN-1 system can be tailored to accommodate your business needs and workstyle. The appearance of the system can also be modified according to your unique needs.

- For organizations or departments, menu options and commands can be modified to add more capabilities and to reflect the way a company does its business. Company logos and interoffice memorandum formats can be added to personalize the system.
- Individuals can modify the system to match their own preferences. Your personal information (such as name, location, or department) is entered into a User Profile. ALL-IN-1 uses the information to fill in electronic mail memo headings automatically, to keep the phone directory up to date, and more.

Multiple levels of access protection

Access to ALL-IN-1 is protected by a password security system. You designate your own password to get into the system and can change it as often as you feel necessary. Data processing privileges are controlled by the system manager and can be provided to experienced users.

Interruptable workflow

ALL-IN-1 works the way you work. You can move from one job to another and later return to where you left off automatically. It gives you control of your activities and overflow.

Easy access from different environments

The User Interface provides many different ways of interfacing with the user such as:

- Natural language versions for countries other than the U.S.
- Hard-copy or command mode provides access from hardcopy terminals, portable terminals, dialup, or slow speed lines.
- Digitized voice output for electronic access from a telephone.

Easy to Use for All Levels of Computer Experience

Computer Based Instruction

Computer Based Instruction is an ease of learning feature designed into many of the ALL-IN-1 products.

Computer Based Instruction provides the following features:

- Online tutorial system instructions for the novice user.
- Learning at your own pace.
- Economical training. You never have to leave your office to take a course.
- A complement to personal hands-on training.
- Makes learning fun, especially for novice users.

Features for ease of use

ALL-IN-1 products don't require you to memorize command sequences.

- Simple menus, commands, and prompts lead you through operations by listing permissible options and instructions.
- Forms allow you to give the system instructions by filling in the blanks.
- Auto-recognition lets you fill in only part of a command, file name, or user name. The system automatically completes the word or phrase.
- Online help provides a quick reference for information and short reminders on how to do something.

Flexible ways of doing things

Since all users are different, ALL-IN-1 user interfaces provide multiple ways of doing things. This makes the system easy to use no matter what the user's level of computer familiarity and experience, ranging from novice to expert.

- Menu bypass and command stringing. Experienced users can enter many commands without passing through intervening menus or prompts. Functions are executed more quickly by taking shortcuts.
- Direct access to operating system command language (such as VMS DCL). Computer-experienced users, technical users, and programmers can use system capabilities without the nuisance of learning or new commands.

• ALL-IN-1 OFFICE MENU

The ALL-IN-1 Office Menu is a customized menu-driven office information system. In its basic form it gives you work processing, electronic mail, calendar, and meeting, schedulers, resource schedulers, a simple desk calculator, project management tools, and computer-based instruction. Its powerful system management facilities give you easy access to your VAX system for filing and retrieving information.

Based on the power and organization of the VAX Information Architecture products, the ALL-IN-1 Office Menu lets you spend your time applying information to your job while the system handles the tasks of manipulating that information for you. You can also modify the ALL-IN-1 Office Menu, so it can change as your job or business changes. And you're not limited to just those applicators that come with ALL-IN-1 Office Menu. You can easily add other applications, such as BASIS inquiry retrieval software, to your system.

Menu-Driven User Interface

If you have used a computer system, you know that after you turn it on or log in to it, the system responds with a READY or > or \$ or some other type of prompt indicating that it is available to do something for you.

Then what do you do? If you've used that system before, or one like it, you know the name of some program and the sequence of commands needed to run it. If you've never used the system before you've come to a halt.

Where do you go from here? You could ask the system for help. Some systems will give you enough instructions to get started. If you've used a computer before, you may even be able to make it do something useful. If you've never used a computer system before, you may need to read an instruction manual or even take a computer course. No matter what, it will probably take a while before you learn how to use that system well enough to do some useful work.



But, if your system is a VAX and it has ALL-IN-1 Office Menu on it, the system doesn't respond to you with a prompt. Instead it displays a Main Menu which lists the many things it can do for you. You immediately have access to document processing tools, electronic mail, desk management tools, information management tools, business applications, and profession-specific applications. You also have easy access to help and computer-based instruction.

To use the Office Menu you simply select one of the items presented on the menu. The system will either start running an application for you or give you an additional menu of options.

No matter what your level of experience and familiarity with computers the ALL-IN-1 Office Menu is easy to learn and easy to use. Its simple menus can lead the novice user through complex operations. Users with more experience can bypass menus and execute functions more quickly. Programmers can move directly to VAX/VMS commands and program development facilities.

Instead of taking days or weeks to learn your system well enough to do some useful work, you can start being more productive in a matter of hours or even minutes with the ALL-IN-1 Office Menu.

Single Office Workstation Access

You can use the ALL-IN-1 Office Menu from a broad range of office workstations, including hardcopy terminals, video terminals, personal computers, and even bisync block-mode terminals. You can use the workstation best suited to your needs and still use the Office Menu system.

With a single terminal at your desk you can run business applications, do word processing, send electronic mail, produce graphs or charts, and develop programs. The ALL-IN-1 Office Menu eliminates the need for multiple terminals in your office to access different systems.

Flow Control

To start an application running on a computer requires a command or series of commands. If you are a system programmer or operator, you know and use these commands daily. But, if you are an office worker or business professional, these commands and sequences of commands are not necessarily easy to remember.

The flow control feature of the ALL-IN-1 Office Menu keeps track of all the computer's specific commands and sequences necessary to run the applications you need to do your job.

When you make a selection from one of the office menus the flow control feature determines if an additional menu with more options should be displayed or if an application should be started. If an application is to be started, flow control gives the system the command or sequence of commands to start running that application for you.

Information you gather with your application can also be added to your documents or electronic mail. If you are creating a monthly report, for example, you could include some sales figures that you had on a spreadsheet model. Flow control allows you to suspend temporarily writing your report. Go to your spreadsheet calculator, and display the necessary information. Flow control then lets you take that information, just as you saw it, and add it to your report.

You don't have to be a programmer or have any experience using a computer system to make the ALL-IN-1 Office Menu work for you. Its many features make the system work the way you do.

Electronic Mail

If you have ever sent or waited for time-critical information to be sent through interoffice mail, you know how frustrating it can be if that information is late or lost.

The ALL-IN-1 Office Menu's electronic mail subsystem, DECmail, lets you communicate with your group, department, and even with other areas of your corporation from your workstation. It works the same way your office mail system should work, except it is quicker and more efficient. With it, you can create, edit, send, read, and print your mail. You also can answer you incoming mail, forward your mail to other system users, request return receipts, and file you mail in the ALL-IN-1 Office Menu filing system.

DECmail can do a lot more for you. You can include information from VAX DATATRIEVE (an ad hoc information query and reporting tool) or from DECcalc (a spreadsheet calculator), or even include previously created documents from your ALL-IN-1 Office Menu filing cabinet.

With DECmail you can improve office communications. Not only will your mail be delivered faster, it will contain more useful information. Electronic mail can open the lines of office communication making you and your organization more effective.

Document Processing

A major feature of any office system is its ability to do document processing well. The ALL-IN-1 Office Menu comes with a simple, easy-to-use document processing package. This package lets you prepare and produce documents as you would on a typewriter, but with all the advantages of having your text on a computer.

Document processing gives you a clean sheet of paper to type on. Anything you type is displayed on your terminal screen. You can make changes at any time, to anything on the screen or anywhere in your text. When your document is finished you can save it in your Office Menu filing cabinet for later use.

ALL-IN-1 Document Processing is easy to use and understand. The document processing menu lists and describes briefly all commands and indicates how to select a command. If the system needs more information to complete a task, document processing prompts you for that information.

Document processing is totally integrated into the ALL-IN-1 Office Menu. Your documents are not limited to the text you type in from your keyboard. You can create documents that contain financial information, graphs, electronic mail messages, or data from application programs.

With ALL-IN-1 Document Processing, you are not limited to the editor offered with the ALL-IN-1 Office Menu. You can add or replace it with two other editors available from Digital or any other editor you want.* For more information about the word processing editors from Digital, see the Document Preparation section of this book.

You have the simplicity of a typewriter with the power of a computer on your desk. Not only will your documents look better, they will be easier to prepare.

Interruptable Work Flow

The ALL-IN-1 Office Menu is designed to be interruptable. While you are creating a memo using document processing, for example, a message may appear on your screen telling you that someone has sent you new mail. You can interrupt what you are doing, read that mail message, and then return to the place you left in your memo.

This feature demonstrates just one way that ALL-IN-1 works the way you work.

*Some restrictions may apply.

Desk Management

The desk management feature of the ALL-IN-1 Office Menu helps you organize and simplify the repetitive tasks that you do at your desk every day. These tasks include updating your "things to do list" (or tickler file), managing your telephone directory, scheduling meetings and conference rooms, managing your calendar, and organizing your electronic filing cabinet.

Desk management can look up telephone numbers faster than you can find and open your telephone book. It can let you know if you have any action items to take care of and remind you about these items that you've noted as high priorities. It can also schedule meetings for you based on the attendees, meeting times, and meeting rooms you specify.

Another feature of desk management is its desk calculator. Not only does it permit such simple functions as addition, subtraction, multiplication, and division, it also offers trigonometric functions. Any results from your desk calculator can be incorporated into your documents, reports, and mail messages.

Instead of spending your valuable time trying to keep your desk organized, desk management helps to organize your day and your work space, giving you more time to concentrate on the more important aspects of your job.

Program Development

The program development feature allows you to use your VAX/VMS system's full capabilities. You are not limited to using only the software that comes with the ALL-IN-1 Office Menu. With program development you can add customized applications to the menu system.

You can also use this feature, with minimal training, to create your own simple applications using the forms development utilities and VAX DATATRIEVE.

You also can develop simple applications quickly to get at information that used to take weeks to access. New applications, programs, and capabilities are added to your ALL-IN-1 system easily.

System Management

System management has also been simplified on the Office Menu system. All of the tools for adding users to the system, updating user information, and maintaining mailing lists are available easily from menus on the system. Managing your files and filing cabinet is now as simple as answering questions or filling in the blanks.

You don't have to hire an experienced, expensive programmer to manage your system. System operations and management have been simplified so that anyone with a minimal amount of VAX/VMS training can manage your system.

User Profile

In this fast-moving business world your job, location, and telephone number may change on a monthly or weekly rate. The User Profile allows you to keep your personal information up to date.

Information from your user profile is used by the system to create memo and electronic mail headers. You have control of keeping that information updated with the user profile feature. You can change your title, department, telephone number, location, account password, and additional information to control how the ALL-IN-1 Office Menu works with you.

You don't have to wait for the system manager or a programmer to change your personal information. You can change your own information when you need to.

Help

The help feature has been designed as an integral part of the ALL-IN-1 Office Menu. It's not always possible to keep a full set of documentation around to help you use all the features of the Office Menu system. Even if you did, you would spend too much time looking things up.

You can request help from just about anywhere in the Office Menu system. The system will respond by giving you simple help. It will give you more advanced help if you need it, and it also has computer-based instruction courses if you need in-depth assistance.

The ALL-IN-1 Office Menu is easy to use. You don't have to memorize commands or keep a set of manuals handy. Help is available any time you need it.

Open System Architecture

It is not always easy to keep all of the information you need to do your job in one place. You keep information in your desk, in your briefcase, or in filing cabinets in your office area.

An office information system works in much the same way. The information you need may be in your workstation, in the large computer system it's connected to, in the word processor in your office, in the data processor down the hall, or even in some computer system across the country. No matter where that information is stored, though, you should be able to get it from the workstation at your desk.

The ALL-IN-1 Office Menu lets you do just that. You have information immediately available from your DECmate, Professional, or Rainbow workstation. Using the communications capabilities of your workstation you can access the Office Menu system for your electronic mail, electronic filing cabinet, and office applications. Using the Office Menu system you can also access information from other vendor's equipment, such as IBM or Wang, using the powerful communications capabilities of the VAX/VMS systems.

The information you need to do your job is available at the workstation on your desk. Getting information from another mainframe or word processor is as simple as making a selection from a menu on your Office Menu system.

Customization and Adaptability

Every business is different. In fact, every person in every business is different. When you set up your office area, you do it in a way to make yourself productive, efficient, and comfortable. The ALL-IN-1 Office Menu has been designed with this same purpose in mind.

Any of the screens, menus, and forms can be changed to fit your specific needs. Using some simple tools, you can customize the ALL-IN-1 Office Menu to work the way you work, to make you more productive, to increase your effectiveness in your job, and to make you feel comfortable using a very powerful office tool.

You aren't restricted to using a system designed by someone else to do just any job. You design your system to do your job.

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                                     Mon 3-OCT-1983

      .   d i g i t a l               ALL-IN-1
                                     Regional Sales Manager's
                                     Workstation

WP  Document Processing             PT  Performance Tracking
EM  Electronic Mail                MR  Management Reporting
DM  Desk Management               PC  Personal Computing
IM  Information Management         EI  External Information
PD  Program Development           PROFILE Modify User Profile

WHO Show VMS users                ADM  Administrative Workform
PAS Change account password       CCA  Corporate Committee Adm
PHO PHONE another VMS user       COCA Corporate Organization Chart Adm

NU  Instructions to the New User
LO  Leave Workstation
BYE To also leave VAX/VMS

Enter selection and press RETURN
OR press the HELP key for help.
  
```


Integrated Applications

With the ALL-IN-1 Office Menu, you can also add additional applications or programs specifically designed to address your business problems. These programs can be provided by Digital (both standard products and custom written applications), by users, or by third-party software vendors.

In this way you can integrate into the ALL-IN-1 Office Menu those applications you need to run your business. And that's the way you get a complete office solution.

ALL-IN-1 Office Menu Security

Through the use of sound operating procedures and system controls, information that you keep in your office system can be as secure as it would be if you kept it locked in your desk. You control many levels of the ALL-IN-1 Office Menu system's security. All of your private information will stay private even if someone on the same system tries to access it. Using the security and protection features of the VAX/VMS operating system and the additional security features of the Office Menu system, you can be confident that your information will remain only yours.

Access to VAX/VMS

Every user of a VAX/VMS system is assigned an account, a user name, a user identification code (defining your group and member number), and password. You can change your password at any time. Even the system manager of your system cannot find out what your password is unless you divulge it.

Access to the Office Menu System

Once you have logged onto your VAX/VMS system, you can start the Office Menu system (this may be part of your VMS login command procedures). In every Office Menu, the user's profile is a password. (This password is different from the password you need to log into the VAX system.) If you leave your password blank the system displays the first menu without checking for a password. If you put a password in, the system asks you for that password as an extra level of security. If you don't answer the password correctly, the system logs you off.

Documents and File Protection

Every file, document, program, or database on a VAX/VMS system has a file protection assigned to it. This protection controls who has access to those files and what they can do to them. Your information can be protected using four

categories that refer to the types of users who can access and manipulate your data. They are:

- Owner-users whose identification code is identical to that of the file's or data structure's.
- Group-users of the system whose group numbers are the same.
- System-users with group numbers totaling 10 or less. System users have certain privileges.
- World-all users.

In each category you can control the access to four levels of protection. They include Read, Write, Execute, and Delete. Using these levels of protection and the user categories you could, for example, limit access to a document to only those people in your group, and limit their access to read only.

Being able to control who can access your files, you can be assured of the security of your data.

• Help and Computer Based Instruction

One of the major problems facing every office worker is education.

- How do you learn your job?
- What does your department do, and how is it done?
- Who do you call when you have a problem?

With the advent of office automation, the office worker's job has been made easier and more complex at the same time. Besides learning your job you now have to learn how to use and depend on an electronic piece of equipment on your desk. How do you learn how to use this workstation on your desk? Once you learn it, how are you supposed to remember all it can do? Who do you go to when you have a question? Do you fear that your question is so simple that you'll be laughed at for asking it?

Digital has been asking these same questions when designing its products. Sure, we offer educational courses to help educate and train you initially, but what happens when you leave the classroom? What happens even before you get to the classroom?

Help

Help features are being designed into Digital's ALL-IN-1 office products. The help key on the DECmates, Rainbow, and Professional systems can give you immediate assistance on how to use your workstation. Help is also available, with a single key stroke, from the ALL-IN-1 Office Menu system.

Help is designed to give you a quick reminder of how to do simple tasks. Help is used as a reference, before you pick up an instruction manual. Usually the simple help message will help you remember how to use a feature, find a special function key, or tell you what options are available in response to a command.



The help feature can make your job a little easier by having a reference source available whenever you need it. With help, your office solution gives you the simple answers to your questions.

Computer Based Instruction

Many ALL-IN-1 office products come with a Computer Based Instruction package. These personal instruction packages can teach you the basic things you need to know to start using your office system as soon as it is installed.

Computer Based Instruction courses are modular, step-by-step tutorials that you can take at your own pace. You can take the more advanced lessons whenever you have time or whenever you need to learn a new feature. An advantage of Computer Based Instruction is that you can take the courses right in your office, without ever leaving your desk.

Computer Based Instruction doesn't replace the personal teaching approach, it complements it. If you need specific training not offered in computer based form, Digital offers more advanced classroom education.

Computer Based Instruction is like having an instructor available whenever you need training. You can start using your office system the very first time you sit at a workstation.

• **OPUS-20 Menu System**

OPUS-20 is an easy-to-use menu-driven interface for DECSYSTEM-20 systems. It provides word processing, information management, and communications capabilities, as well as extensive help features for both distributed processing and the office environment. You don't have to know TOPS-20, the DECSYSTEM-20 operating system, to take advantage of OPUS-20, because OPUS-20 provides a common, easy-to-use interface to all your application software. You have simple access to decision support as well as word processing software. OPUS also integrates with your distributed systems, so all your staff can access many data files.

Office Automation for DECSYSTEM-20

OPUS-20 provides word processing, information management, and communications abilities, including electronic mail, as well as special options that give you a calendar keeper, automated telephone directory, and keypad calculator. The menus and capabilities are similar to those of the ALL-IN-1 Office Menu system on the VAX, so once you learn one office menu system you can use them both. This menu approach to all your applications increases your efficiency considerably.

Word Processing

OPUS-20 includes access to a complete word processing editor that looks similar to the DECmate's. It gives you the features of an electronic typewriter with the extensive capabilities of a large computer. Pictures, illustrations, charts, and graphs created on any available graphics software packages can be incorporated into your documents.

You can create documents with that professionally printed look, that are easy to maintain, and can be shared easily among system users.



Electronic Mail

OPUS-20 offers a complete network electronic mail system that supports both distribution lists and nicknames. You can exchange information with other DECSYSTEM-20 users or with users on VAX/VMS systems. Your office communications thereby improve with quicker mail delivery.

Communications

Since only OPUS-20 needs to know where each tool in a system or network resides, everyone can use the same computer for interoffice communications. Your mail system and calendar management utilities can run on the same system for all users.

This cuts down on network overhead and allows you to communicate easily.

Network Interface

OPUS-20 can keep track of where your applications and information are stored. It also can run applications on other systems for you. All of the command information needed to run an application on another networked system is initiated by OPUS-20, simplifying your job.

Menu-driven Interface

OPUS-20's interface gives you a choice of applications, without any knowledge of the TOPS-20 operating system, so you need less training. For networking, OPUS-20 keeps track of which application runs on which system and how they're accessed, so you don't need to know system information or commands.

Folders

OPUS-20 has a simple, easy-to-use folder manager that lets you create filing folders electronically. With this feature, your information management performance improves significantly because of fewer lost documents.

Menu Development

You can customize OPUS-20 to meet your needs. You can change and expand menus to access any application that runs on the DECSYSTEM-20. You then can have a menu that fits the way you work.

User Interface

Product Specifications and Ordering Information

ALL-IN-1 Office Menu	1-21
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• ALL-IN-1 Office Menu

Minimum Hardware Required

Any valid VAX/VMS system configuration will:

- At least 2 megabytes of dedicated main memory
- The following disk space requirement (Block Cluster Size = 1):
- either
- Target disk with 32,000 blocks and system disk with 22,000 blocks (system disk space required only for installation)
- or
- System disk with 32,000 blocks
- VAX 11/730 systems require a minimum of an R80/RL02 or RA60 configuration
- VAX 11/725 systems requires that ALL-IN-1 be built on a larger VAX and moved to the 11/725 on an RC25 disk pack. Building ALL-IN-1 for a target VAX 11/725 is only supported under VAX/VMS V4.
- Terminals supported are:
- VT100 series (VT100, VT100W, VT101, VT102, VT125) or terminals in VT100 emulation mode (VT220, VT240, DECmate II, Rainbow, PROfessional 350)
- VT200 series' are supported where ALL-IN-1 is running on VAX/VMS Version 4 (VT200, VT240, VT241)
- Any other terminal, supported by VAX/VMS, is supported only in ALL-IN-1 "hard copy mode"

Optional Hardware

- ALL-IN-1 supports any mass storage, unit record or terminal device supported by the prerequisite software.
 - The autodial feature of the Communications application has been tested with the following modems:
 - Digital Equipment DF02-AC
 - Digital Equipment DF03-AC
 - Digital Equipment DF100 series modems
- Case 440/12

-
- Racal-Milgo MPS1222-AD
 - Racal-Milgo MPS1222 with Racal-Vadic VA811
 - Digital supplied modems only are supported in the USA. Support in all other countries is dependent upon the suitability of the modem for use in that country and whether local PTT approval is necessary and been granted. The local Digital office should be contacted for further information.
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Prerequisite Software

- VAX/VMS Operating System Versions 3.6, 3.7 or 4.0
 - VAX/FMS V2.1 for use with VAX/VMS V3.6 or V3.7
 - VAX/FMS V2.2 for use with VAX/VMS V4.0
-

Note: DECnet-VAX and Message Router/VMS are required for multi-node support
OPTIONAL OFFICE APPLICATIONS SOFTWARE

- WPS-PLUS/ALL-IN-1 V1.0
 - VAX DECspell V1.1
 - DECtalk Mail Access V1.0
 - All-IN-1 Voice Messaging Support V1.0
 - VAX DATATRIEVE V2.2 for use with VAX/VMS V3.6 or V3.7
 - VAX DATATRIEVE V3.0 for use with VAX/VMS V4.0
-

License Options

- *Single-Use License Option*

The Single-Use License is your right to use the software product on a single CPU and it includes your 90 day warranty.

For your first installation of this software product you must purchase as a minimum:

- *Single-Use License Option, and
Distribution and Documentation Option*

The license gives you the right to use the software on a single CPU and the Distribution and Documentation Option provides the machine readable software and related documentation.

To use this software product on additional CPUs, you must purchase for each CPU as a minimum:

- *Single-Use License Option*

In addition to the right to use, the license gives you the onetime right to copy the software from your original CPU installation to the additional CPU. Therefore, the Distribution and Documentation Option is not required, but optional.

- *VAXcluster License Option*

You are eligible for a VAXcluster license option on your second or each subsequent CPU that is part of a VAXcluster system. This is a Single-Use License offered at a reduced price and provides all of the License rights described above. A standard, Single-Use License Option (QDxxx-UZ or QExxx-UZ) is required with the first purchase of this software product and is also required for the first CPU of a VAXcluster system.

For software configuration purposes, a VAXcluster system is a set of VAX processors, each running the VMS operating system, where each VAX processor has a direct path to every other VAX processor via Computer Interconnect (CI) Bus.

• ALL-IN-1 Office Menu Ordering Information

Options	Systems		
	VAX-11/730 VAX-11/725**	VAX-11/750	VAX-11/780 VAX-11/782* VAX-11/785
License Options: A license is required for each CPU.			
Single-Use License	QC902-UZ	QD902-UZ	QE902-UZ
VAXcluster License		QD902-QZ	QE902-QZ
Materials and Service Options:			
Distribution and Documenta- tion Option	QC902-HH	QD902-HJ	QE902-HJ
	QC902-HJ	QD902-HM	QE902-HM
	QC902-HM	QD902-HV	QE902-HV
Software Revision Right-To- Copy Option	QC902-HZ	QD902-HZ	QE902-HZ
Documentation Only Option	QL902-GZ	QL902-GZ	QL902-GZ
User Documentation Kit	QL904-GZ	QL904-GZ	QL904-GZ
Documenters Kit**	QL905-GZ	QL905-GZ	QL905-GZ
Installation Service Option	QC902-IH	QD902-IJ	QE902-IJ
	QC902-IJ	QD902-IM	QE902-IM
	QC902-IM	QD902-IV	QE902-IV
Software Product Service Agreements:			
DECsupport Service	QC902-9H	QD902-9J	QE902-9J
	QC902-9J	QD902-9M	QE902-9M
	QC902-9M	QD902-9V	QE902-9V
Basic Service	QC902-8H	QD902-8J	QE902-8J
	QC902-8J	QD902-8M	QE902-8M
	QC902-8M	QD902-8V	QE902-8V
Self-Maintenance	QC902-3H	QD902-3J	QE902-3J
	QC902-3J	QD902-3M	QE902-3M
	QC902-3M	QD902-3V	QE902-3V

*For software purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

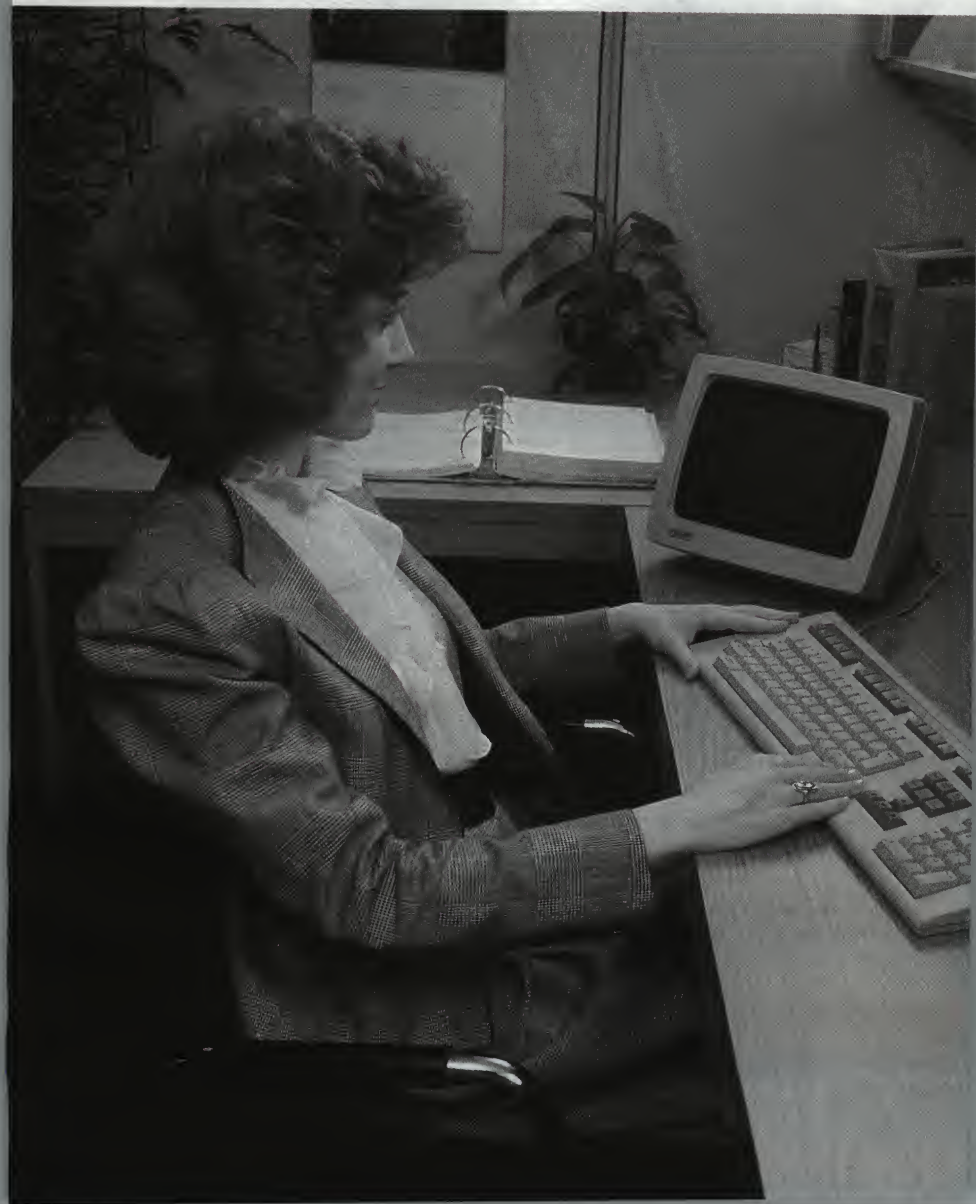
**VAX/VMS V4.0 is a prerequisite.

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QC902-HM = binaries on 9-track 1600 BPI Magtape (PE).

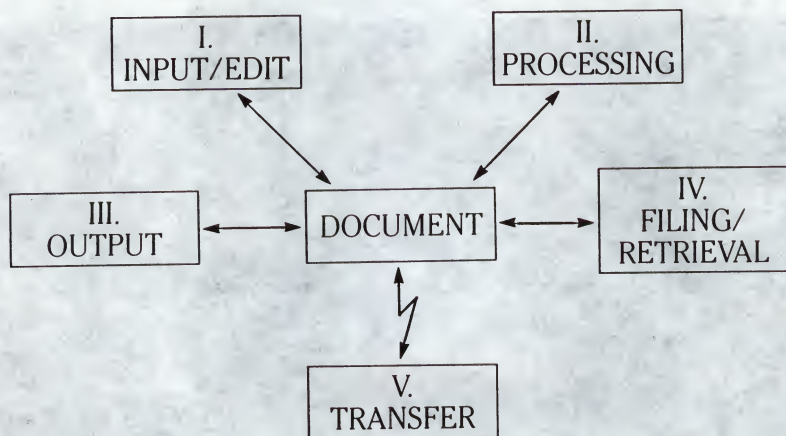
G = TU58 DECTape II Cartridge
H = RL02 Disk Cartridge
J = RA60 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)

V = RK07 Disk Cartridge
Y = RX01 Floppy Diskette
Z = No hardware dependency

Section 2 • Word Processing



Word or document processing is defined as all aspects of producing any document that has text as its principal element. It is one of the most important pieces of an office system, and the cornerstone of many other office applications. The five major components of document processing are:



This section will highlight the capabilities of Digital's word processing products in the first three areas: text input and editing, document processing, and document output and printing. Components IV and V are discussed in the sections Filing and Retrieval and Movement of Information.

Text Input and Edit

Digital has a variety of solutions that satisfy word processing needs. Selection of the best word processing product is based on two requirements.

The first is how frequently the user needs word processing to do a job. The casual user may actually access word processing only 10 percent of the time, while the heavy user may need it up to 50 percent of the time.

The second is the specific feature and functions the user needs. Managers may need only simple edit commands to create short mail messages or memos, while a professional or secretary may need full word processing capabilities.

Digital has several major word processing products to satisfy this range of needs.

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- For the heavy user of word processing who requires full functionality: The *DECmate* family of word processors.
 - For the casual user of word processing that also requires full functionality: *WPS-PLUS*, host-based word processing available on VAX and ALL-IN-1.
 - For the casual or heavy user who requires minimal editing functionality: the *ALL-IN-1 Editor*, a simple ALL-IN-1-based text Editor.
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These products all offer the same editing interface and can access the same documents. Users can start out using the *ALL-IN-1 Editor*, and grow into *WPS-PLUS* or the *DECmate* as their needs evolve and expand. They can also be used in combination, too. A Professional can use *WPS-PLUS* or the *ALL-IN-1 Editor* to create an initial draft of a document, and then send it to a secretary's *DECmate* for final editing and printing.

This family of word processing products provides solutions for the majority of your needs. However, special cases may arise when you might need other alternatives for some specific applications. Digital's breadth of word processing offerings also includes:

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- *DECType*, for OEMs who need to integrate word processing as part of an integrated solution for small businesses.
 - *PROSE-PLUS*, for users who need a text editing on Digital's Professional series of personal computers.
-

Document Processing

During or after creation of a document, users may need to perform additional operations. They may need to merge records and text via list processing, or to check and correct spelling. Digital provides two specific products to address these needs *DECspell* and *List Processing*.

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- *DECspell* is a spelling checking and correcting facility available for *WPS-PLUS* and the *DECmate*. It provides full spelling verification and correction capabilities and a large standard lexicon plus user-specific lexicons.
 - *List Processing* is a standard component of *WPS-PLUS* and the *DECmate*. It provides full selection criteria and integrated math and sort. It is used for merging form letters with name and address lists, reports, data, etc.
-

Document Output and Printing

During document creation and production, users require hard copy output of the document, both as drafts and as final, finished products. Included in this step is the selection of a specific printer for output, such as final pagination, page layout (margins, spacing, etc.), justification and hyphenation, and number of copies to be printed. The requirements for output vary widely between draft and final copy, between types of output device, and between local and remote printing.

- *WPS Print Menu* is included as a standard feature on the DECmate and WPS-PLUS, and is used to output standard word processing documents. It offers a choice of draft or letter-quality printing, basic page layout, and printing options.
- *DECpage* an ALL-IN-1 or VAX application, outputs any DX-format document to a laser printer or letter-quality printer. It is used to obtain high-quality output of office documents, such as proposals, reports, presentations, and manuals. It supports multiple fonts (on the same page), true justification with proportional spacing, corporate logos, and automatic hyphenation and pagination. No graphic arts skills are needed to use it; the user just chooses from a standard library of print styles (fonts). DECpage can also be used to print "compound documents"—text merged with graphics or line drawings.

Digital's word and text processing offerings are broad and meet the specific needs of a wide range of office users. Our goal is to provide the right word processing product for every individual—products that are fully integrated into the overall office information system.

• DECmate/WPS

DECmate/WPS (Word Processing Software) is a full-featured, professional word processing product available on the DECmate family of word processors. Designed for high-volume document creation and modification, the software is entirely menu-driven for easy use; many intermediate menus can be skipped once you are used to the system. DECmate/WPS uses Digital's Gold Key interface, which reduces most commands to two keystrokes. Other special keys let you delete, add, move, transpose, or duplicate text by character, word, line, paragraph, or block.

The DECmate/WPS' formatting features include underline, boldface, centered lines of text, uppercase/lowercase transposition, automatic pagination, automatic word wrap, date and time of document creation, automatic justification, and semiautomatic hyphenation. The DECmate displays underlined and boldfaced characters with highlighting for easy editing. DECmate/WPS also provides the following features and benefits.

User-Defined Keys

You can record a series of frequently used keystrokes and reduce the series to one stroke of the User-Defined Key (UDK). This not only saves you time by reducing the number of keystrokes you need, but also eliminates the chance of error in hitting the wrong key within a sequence. UDKs greatly simplify system use. And you can have up to 100 UDKs in your DECmate/WPS system.

Concurrent Printing

While you're printing one document, you can edit another one. You save the elapsed time that would be required if you waited until printing was complete. You can continue to be productive while the system prints your document, or documents. Up to eight documents can be waiting to print.

Automatic Document Index

DECmate/WPS records the name, size, version number, date and time of creation, and date and time of modification of each document on the diskette in use. The software also maintains a running total of time spent on each



document, and on the most recent edit, and indicates how much space on the diskette has been used and how much remains. This feature eliminates confusion about what is stored on any diskette. And you don't have to record and update valuable information about each document—it's done automatically. If you need to maintain logs, possibly to keep track of time to be charged against different jobs, you don't have to do it manually. DECmate/WPS does it for you.

Computer Based Instruction

An interactive teaching program provides the information you need to learn to use the WPS system at a good pace for you. You learn about the system while you use it. It's easy to learn; the instruction is under your control and moves at your pace. Since you can become productive quickly, costly training is unnecessary.

Rulers

DECmate/WPS' rulers allow you to set and change your format through margins (up to 238 characters), spacing between lines (single, double, half, or one-and-one half), tab stops, right margin justification, paragraph indentation, center of document position, and column position, and column alignment (right, left, or on a decimal point). You can design as many rulers as you want, and you can store up to ten in a boilerplate library for easy, quick reuse.

Global Search and Replace

DECmate/WPS moves forward or backward through a document and finds or replaces all occurrences of text that you specify. You can save time by making a global change. This feature simplifies and speeds editing and eliminates the possibility that you might miss some text you want to change.

Go-to-Page

With just a few keystrokes, you have immediate access to any page in a document. You can move forward or backward to a specified page or through a specified number of pages. You save the time it would take to scroll manually through a document, and move quickly and easily to any page you want to see or change.

Boilerplate Library and Abbreviation Dictionary

DECmate/WPS allows you to store standard information—boilerplate text, letter or memo formats, names, addresses, titles, technical words, and distribution lists—and easily add this information to the document you're working with. The text doesn't have to be retyped, reformatted, and proof-read. Errors are reduced, with less time required for document preparation and editing.

Cue Cards

Prompting commands requesting further information, if the DECmate/WPS system needs it, appear automatically on your screen. This feature simplifies system learning and use.

Footnoting and Technical Character Sets

For more advanced document preparation, DECmate/WPS lets you define footnotes in the text. Later, they're automatically placed at the bottom of the page. You can also insert technical characters into the document and print the results on a printer equipped with the appropriate technical ROM.

List Processing

You can create unique and customized documents from a form document. Because List Processing performs a select merge function, you can pair the form document with all entries in your list or with selected entries. This makes it easy for you to prepare mass mailings, standard monthly reports, or standard forms. The flexibility this feature provides lets you mix, match, and customize your text in the form that you need it.

Editor and List Processing Math

With DECmate/WPS, you can perform calculations (addition, subtraction, multiplication, and division) while you edit a document or during list processing. And you can add the results of the calculations to the document you're editing or processing. It's easy for you to create, update, and maintain numerical tables in documents. This feature improves the speed and accuracy of your numerical calculations.

Sort

You can arrange information in a list in ascending or descending alphabetical or numerical order. With a list of names and addresses, you can quickly order by name of addressee, name of town or state, or zip code. You can get accurate information fast and a tedious, time-consuming task is done automatically.

CX/AX/DX Communications

You can move documents electronically from one DECmate to another DECmate or to another Digital word processing system such as WPS-PLUS. Rekeying and proofreading is unnecessary when information needed for one document is already contained in another document.

Communications Made Even Simpler

The true value of the DECmate as an Office Workstation becomes more obvious once you realize how easy it is to transfer documents to and from other systems. A new WPS software feature called Easycom makes it easy to dial, log onto a host, and issue start-up commands.

A single keyboard command puts you and your documents in touch with other office information systems such as our ALL-IN-1 system, other DECmate users, or even other vendor systems and public information databases like Dow Jones News/Retrieval, Compuserve, WESTLAW, and The Source.

• WPS-PLUS/VMS

Managers and office professionals now can have the best of two worlds: the full-function word processing capabilities of the DECmate family of workstations and the power of a VAX shared computer system.

The cooperation between DECmate workstations and VAX computers gives you ready access to the information you need. Managers now can access information from the VAX host, incorporate that information into initial draft memos and reports with WPS-PLUS, then transfer the file to a DECmate for final editing and formatting (or vice-versa). Knowledge workers have at their disposal advanced formatting, diagram editing, and page composition facilities; and they can use mail facilities from the VAX computer to exchange WPS-PLUS documents for review and comment. WPS-PLUS is a breakthrough in easy-to-use integrated word processing. Listed below are some of the key features of WPS-PLUS:

- Digital's Gold Key editing
- An integrated filing system
- User-defined procedures and integrated computer-based instruction
- List-processing, math, and sort
- Integrated DECspell spelling correction
- Diagram creation and high-quality printing
- DECmate file compatibility and Wang document access

WPS-PLUS/VMS runs on any VAX/VMS system. WPS-PLUS/ALL-IN-1 is a version that is fully integrated into an ALL-IN-1 Office System.

Digital's Gold Key Editing

Digital's Gold Key word processing editor has been refined over the years to become one of the easiest to use editors on the market. You can activate all major word processing commands with a simple two-key sequence; the Gold Key followed by the appropriate key on the main keyboard. You don't have to memorize different function keys or complex commands; they're all at your fingertips.

The Gold Key is the standard for WPS-PLUS and all of Digital's word processing systems. Because you use the same keyboard as the DECmate, Digital's popular word processing workstation, you protect your investment in DECmate training and experience. The editing features on WPS-PLUS are fully compatible with DECmate's. These include full ruler support, bold, underline, centering, wordwrap, automatic pagination, justification, headers and footers, go-to-page, global search and replace, cut and paste, subscript/superscript, semi-automatic hyphenation, four-function math and abbreviation and library text.

WPS-PLUS is a full-screen editor. It allows full cursor control either by directional cursor keys or grammatical movement keys like word, sentence, or paragraph. Of course, WPS-PLUS is fully menu-driven, so you can start work quickly and easily.

Integrated Filing System

WPS-PLUS allocates an electronic file cabinet for each user to store file folders and documents. You can set up your own filing system to resemble the paper systems you have now. You can cross-index in different folders, throw out documents and folders, or even go through your "wastebasket" to retrieve deleted documents.

Getting a document is easy. WPS-PLUS lets you retrieve documents by keywords as well as document number or document and folder names.

Scientific and Technical Editing

WPS-PLUS supports full scientific and technical character sets, easily accessible from the word processing keyboard. An equation editor lets technical professionals create, edit, and manipulate complex scientific equations and matrices quickly and easily. WPS-PLUS also comes with a library of pre-drawn mathematical and technical symbols which can be inserted in an equation with a few simple keystrokes.

User-Defined Procedures

User-defined procedures (UDPS) let you automate those key sequences you use frequently. For instance, the series of commands you use to edit a particular document can be compressed into two or three simple keystrokes. Besides saving time, you can satisfy a wide variety of application needs, because there's no limit to the number of UDPS you can define.

Computer-Based Instruction and Online Help

WPS-PLUS has an integrated computer-based instruction facility that you can access anywhere. You can actually do your work while you learn to use the system. Online help is always available to provide information about specific features and cross-references to related functions.

List-Processing, Math, and Sort

You can use list-processing to develop customized letters, reports, and mailing labels. WPS-PLUS/VMS stores an unlimited number of records, and can use multiple fields for sorting. The math capability performs automatic calculations during processing.

Integrated Spelling Correction

WPS-PLUS supports VAX DECspell, an optional spelling verification and correction facility based on Houghton Mifflin's *American Heritage Dictionary*. You can check spelling while you're editing so you eliminate the need for a separate spelling pass after you complete your work. With a single Gold Key command, DECspell can check the spelling of a single word, sentence, or paragraph so you only have to check that portion of the document that you're changing.

If DECspell finds a misspelled or unknown word, you can select the suggested correction (and automatically replace it one time, or throughout the document), ask for more correction alternatives, manually edit the word once or throughout the document, ignore the word, or automatically add it to your personal dictionary.

Diagram Creation

WPS-PLUS supports another utility, the Two-Dimensional Editor. This utility lets you compose diagrams, equations, line drawings, charts, and matrices. It's perfect if you need to create and edit organizational charts, or scientific equations.

DECmate Compatibility

WPS-PLUS documents are fully compatible with any you create on a DECmate. With DECdx, an optional, menu-based communications package, you can transfer a document from DECmate to WPS-PLUS/VMS, edit it, then send it back with no formatting loss. This allows professionals and secretaries to work as a team.

High-Quality Printing

WPS-PLUS can print documents any way you want them, either on a full array of draft and letter-quality printers or, with optional DECpage software on a laser printer. You have a wide selection of typefaces and styles from which to choose, and can even print text merged with graphics and drawings.

Access to Wang Documents

For multivendor environments, WPS-PLUS can even edit documents created on a Wang OIS system. Using the optional External Document Exchange software, you can transfer Wang documents to your VAX and have them

converted to a WPS-PLUS format. Once you edit or modify them through WPS-PLUS, you reconvert and send them back to the Wang System.

WPS-PLUS helps bring DECmate-style editing and ease of use to your VAX environment. It's a major step towards providing a common word processing bond among all of Digital's computer systems.

• WPS-PLUS/ALL-IN-1

- WPS-PLUS/ALL-IN-1 is an optional document processing product for office professionals which is fully integrated into the ALL-IN-1 Office System. This means:

- WPS-PLUS is completely integrated into the ALL-IN-1 menu system and can be installed as your default editor and selected from the ALL-IN-1 main menu.

- WPS-PLUS can be used to create, edit, revise and spell check (with DECspell) your electronic mail messages, and will access the ALL-IN-1 electronic mail facility to distribute these messages.

- WPS-PLUS documents can also be mailed as completely revisable documents with all formatting information (bolding, underlining, centering, etc.,) maintained.

- WPS-PLUS is integrated with other ALL-IN-1 applications and lets the user cut and paste information between applications. Information created in Electronic Mail, Calendar, etc., can be included in a WPS-PLUS document or vice versa.

- WPS-PLUS uses the ALL-IN-1 filing system, with a single file cabinet for each user, including folders and documents, and easy retrieval by keywords. Deleted documents are stored in a wastebasket until emptied by user.

- WPS-PLUS/ALL-IN-1 Main Components include all the features outlined under WPS-PLUS/VMS, including:

- Technical and Scientific Character Set Support

- Full GOLD Key Style Word Processing Editing features

- List Processing, Sort and Math

- Two Dimensional Editor (for drawing diagrams, charts, and creating equations)

- User Defined Processes

- Computer Based Instruction (CBI) for self training

- A complete print facility

• ALL-IN-1 Editor

The ALL-IN-1 Editor, provided with ALL-IN-1 software products, is a basic word processing editor that you can use to create documents and electronic mail messages. The ALL-IN-1 Editor uses Digital's standard WPS user interface. Features and benefits include the following.

User Interface

The ALL-IN-1 Editor offers the same easy-to-use word processing interface used by DECmate/WPS and WPS-PLUS. This minimizes retraining, and if you're already familiar with Digital's WPS system, you can become productive quickly. And you have the mobility to work in the same way on any computer system, such as the DECmate, that uses Digital's WPS word processing software.

Gold Key Functions

The Gold Key allows use of the alternate functions of the keyboard and keypad. You can press the Gold Key, for example, and then the G key on the keyboard (the Gold Get combination) to add text from another document in the ALL-IN-1 system to the document you're editing. The Gold Key functions enhance and expand your word processing capabilities, and save you time by reducing most commands to two keystrokes.

Cursor Movement

You can move the cursor horizontally, or vertically by character, word, line, section of 16 lines, or page. It's easy to position the cursor wherever you want to change your text.

Full-Screen Editing

You can edit your document at any place that appears on your video screen. It's easy to make changes because you can see how they'll fit into the overall context of the page.

Word Processing Capabilities

You can delete characters and words, cut and paste text, swap characters to correct transposition errors, search for text and replace it if you want, center text, and set tabs and margins. These basic capabilities make it easy for you to create and change documents.

Full Integration with ALL-IN-1

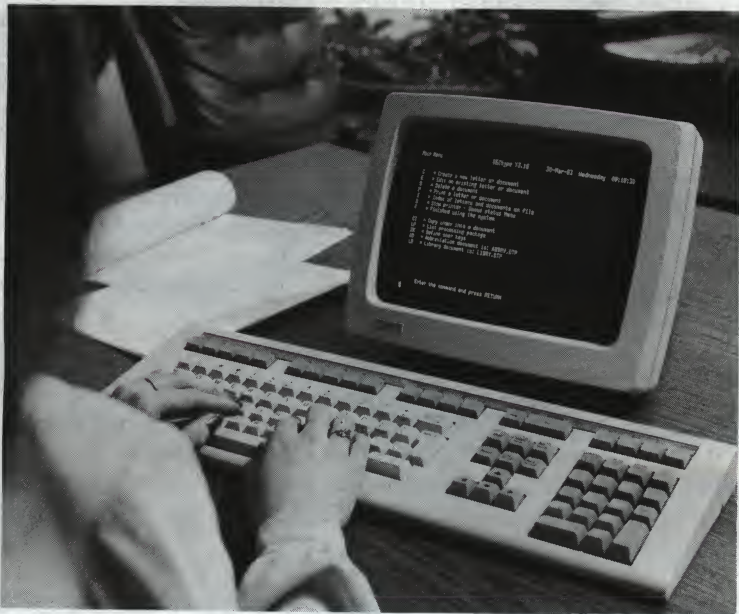
While you are using the ALL-IN-1 Editor, you can add information stored in other ALL-IN-1 files to your document; you can also incorporate information from standard VAX/VMS files into your document. This saves the time of retyping information already available elsewhere, thus eliminating the potential of introducing typing errors and the need for proofreading.

• DECType

DECType brings layered word processing to Digital's PDP-11 and MICRO-11 family of systems. This product adds word processing capabilities to a system that functions primarily as a data processor, and is recommended as the solution to secondary needs for word processing. Its features and benefits include the following.

Menu-Driven Operation

DECType gives you a list of options (creating, editing, or filing) from which you select the function you want to perform. Because your options are presented, it's easy to learn about and to use the system. You can be productive quickly, with minimal training and minimal frustration.



Center Screen Editing

You make changes to your document in the center line on your screen, which allows you to see preceding and following text. It's easy to make changes because you can see and think about how they will fit into context.

User Interface

DECType offers the same easy-to-use word processing interface used by DECmate/WPS and WPS-PLUS. This minimizes retraining, if you're already familiar with Digital's WPS system. You can be productive quickly. And you have the mobility to work in the same way on a VAX/VMS system with WPS-PLUS or on a DECmate system.

User-Defined Keys

You can record a series of frequently used keystrokes and reduce the series to one stroke of the user-defined key (UDK). This not only saves you time by reducing the number of keystrokes you need, but also eliminates the chance of error in hitting the wrong key within a sequence. UDKs greatly simplify system use. And you can have up to 10 UDKs in your DECType system.

Help Facility

This feature allows you to display the keyboard layout on the screen and get an explanation of the word processing function keys. You can easily get the information you need to use the system fully, if you lack experience with the system or use it infrequently. This saves you time by helping you through your task quickly.

Math Package

With DECType, you can perform calculations (addition, multiplication, and division) while editing. You can then add the results of the calculation to your document, if desired. This increases the accuracy of the numbers you use in your document, and saves you the time of turning to a separate calculator for answers.

List Processing

You can create unique and customized documents from a form document. Because List Processing performs a select and merge function, you can pair the form document with all entries in your list or with selected entries. It's easy for you to prepare mass mailings, standard monthly reports, or standard forms. The flexibility this feature provides you mix, match, and customize your text in the form that you need it.

The format you choose is displayed on the screen as you create and edit your document. You can see what the document looks like, and make any changes you want, even before you get a printed copy.

• PROSE-PLUS

PROSE-PLUS, a full-screen text editor, adds word processing capabilities to the Professional 300 Series of personal computers. As one more member of the growing family of software applications for the Professional 300 Series, PROSE-PLUS combines with the multitasking, storage, and communications capabilities of the Professional to create a truly integrated and efficient method of producing written communications. PROSE-PLUS meets the needs of the secretary, professional, or executive through an easy-to-use system that makes even the casual user feel comfortable.

PROSE-PLUS lets you delete or insert characters easily. You can cut and paste blocks of text to rearrange words, sentences, or even paragraphs, with speed and accuracy. And you can easily control all tabs, margins, and page breaks to ensure that your final page will look great. The system's features and benefits include:

PROSE Compatibility

Files prepared with your existing PROSE editor are fully compatible with PROSE-PLUS. You can use PROSE-PLUS to edit any documents you've already created with PROSE. And if you've already learned to use PROSE, you'll find PROSE-PLUS especially easy to use.

Menu or Command Mode

You can use PROSE-PLUS no matter what level of experience you have with the system. If you're a casual or inexperienced user, you can choose PROSE-PLUS' menu mode, which gives you a list of your options. You'll be productive quickly, and without frustration. And when you're familiar with the system, you can skip the menus and switch to command mode.

Help Key

Outline help is available with one keystroke. And the help you're given when you press the Help Key addresses your current task and options. The system is easy to learn and easy to use.

Full-Screen Editing

PROSE-PLUS is a full-screen editor, which means that you can move the cursor to any place on the screen to make your change. You can see how the change will fit into context. And you'll be able to see the new page format as soon as you make your change.

• List Processing

Digital's word processing systems, like DECmate and WPS-PLUS, include a powerful and flexible list processing tool to help you use the data stored in your system. With list processing, you can select data from your files and merge them with another document. You can write a letter, for instance, and automatically personalize it from a list of names and addresses, or you can combine financial information with a report. List processing lets you mix, match, and customize your documents in almost any way you want.

Personalized Multiple Copies

From your list of names and addresses, for example, list processing produces a crisp, personalized, original letter. You type the basic letter only once and it's automatically reproduced for each name on your list.

This automatic merging enhances the quality of the work environment because it eliminates a boring, repetitive task, saves time, increases productivity, and reduces errors.

Selection Criteria

List processing software can test records in your lists and select only those that meet your criteria for processing. The flexibility list processing gives you saves time because it prints only the information you need.

Ease of Use

You create your lists of names and forms for statements, reports, and letters as easily as you would type any other document. Your selection commands are in ordinary English, so you don't have to learn special codes or mnemonics.

• WPS Print Menu

You have a choice of how each document you create on your ALL-IN-1 Office Menu system should be printed. The Office Menu system, WPS-PLUS and DECmate/WPS come with a standard print menu. This menu gives you a choice of any of the available printers, including high-speed impact printers, draft-quality printers, and letter-quality printers.

Printer Selection

The Print Menu gives you a choice of any of the available printers on your office system. Choices can include draft printers, letter-quality printers, laser printers, or even your own terminal (DECmate/WPS is limited to draft or letter-quality printers). Printer selection allows you to pick the printer closest to you, so that you can pick up your document outside your office instead of

somewhere else in the building. If there is one printer you use most often, you can have that printer established as your default printer. Of course, you can always override the default if you need your document printed on another printer. The system helps you determine which printers are available, taking some of the guesswork out of your job.

Variable Print Formats

To meet your specific office needs, Digital offers a wide range of printers that can be attached to your office systems. Printers can be set up to take advantage of special type fonts or formatting characteristics. When creating your documents, you can use draft printers to print your work quickly. When your document is in its final form, you can send it to a letter-quality printer or a laser printer for high-quality output.

You have a choice of printers for general printing requirements and for formal high-quality printing, so your documents are presented in the most appropriate formats.

Automatic Document Selection

The Print Menu automatically selects the last document you worked on, since this is the document most often requested. However you can also enter the name of any document in your filing cabinet.

You don't have to remember the name of the last document you worked on, or even type the name in. The system fills in the needed information for you, making your job just a bit easier.

• DECpage

DECpage is an ALL-IN-1 or VAX/VMS application that lets you print documents produced on your word processing system with professional print quality and accuracy, and without the need for text markup or graphic arts skills. DECpage also prints "compound documents"—text merged with graphics or drawings. DECpage takes advantage of multiple fonts, true proportional spacing, and even corporate logos to create high-quality office printing. Much more than a print facility, DECpage adds visual impact and professional quality to word processing. It's easy to learn, requires no special characters, and anyone with access to a word processing system can use it.

Comprehensive Word Processing Support

DECpage can print any document created with Digital's word processors. If you use a DECmate, WPS-PLUS, or any word processing system on ALL-IN-1 (DECdx format), you can create DECpage documents.

DECpage Uses Digital's LN01 Laser Printer

DECpage can print any document on an LN01 or LN01s attached to a VAX system. This means that you can increase your productivity dramatically, because with the laser printer, DECpage can print much faster than a letter-quality printer. Also, you enhance your professional image, because laser printers have higher print quality than letter-quality printers. Finally, you save money by saving paper; you can print the same text in a smaller space.

DECpage Also Supports Letter-Quality Printers

You also have the option of standard letter-quality printing, so you can choose the most suitable printer for your needs.

If you don't need laser quality for certain jobs, especially initial drafts, you have a choice. So you can conserve money and resources.

Standard Word Processing Keyboard Conventions

With DECpage you use regular word processing characters, like bold, underline, returns, and tabs when you create a document. You don't have to learn special typeset or graphic arts symbols. In fact, anyone who can use word processing can use DECpage; you don't need additional training.

A Library of Standard Print Styles

Once you create a document, you select the best print style from the library. This includes styles for memos, letters, reports, directories, newsletters, presentations, and general printing. DECpage then takes care of everything else including formatting, spacing, and font selection.

DECpage, therefore, saves you time. You can create several different looks for a single document by simply selecting different print styles, without revision. And you don't need graphic art skills to do it!

Compound Document Printing

With DECpage, users of DECmate or WPS-PLUS can incorporate any REGIS graphic file (such as those created by DECgraph or DECslide) into their document by specifying a size, caption, and the name of the graph file. DECpage then positions the graph on the page floating it to the top or bottom of the current facing, or following page if necessary. DECpage then prints the merged text and graphics on a laser printer.

Customized Print Styles

You can have several of the standard print styles customized to suit your organization, so your printing looks exactly the way you want it. Even corporate logos (available through the Compugraphic Corporation) can be installed as part of DECpage.

Advanced Printing Procedures

DECpage automatically controls vertical and horizontal text justification, hyphenation, pagination, section numbering, and single lines of text left abandoned at the top or bottom of a page.

This saves time, increases productivity, and helps establish a good work environment by relieving you of repetitive manual proofing.

ALL-IN-1 Facilities

You access DECpage using ALL-IN-1 menus, so you take full advantage of such facilities as online Help. Because of the ALL-IN-1 menu system, DECpage is very easy to learn, making you productive quickly.

• DECspell

DECspell is Digital's sophisticated spelling verifier and corrector for VAX computers and DECmate workstations. Easy to use and interactive, DECspell is based on Houghton Mifflin's best-selling *American Heritage Dictionary*. It has a master lexicon, or word list of over 80,000 words. DECspell's dictionary can be expanded with your own personal dictionary, and on VAX systems, with a number of shared dictionaries.

DECspell corrects a wide variety of spelling errors, including typographical errors and phonetic misspellings. When you use DECspell with Digital's word processing software, you enhance the professional quality of your office memos, reports, or documents, and eliminate the need for tedious proofreading.

Highlights

- Sophisticated spelling verification and correction
- Option menu
- High degree of accuracy
- Fast and interactive
- British and American lexicons
- Personal and shared dictionaries
- Support for different document types
- Integrated with WPS-PLUS

Sophisticated Spelling Verification and Correction

DECspell interactively scans your document to detect spelling and capitalization errors and give you alternatives. While most spelling packages can correct standard misspellings accurately like "help" for "hilp," DECspell goes further. It also corrects typographical errors such as "hte" for "the." What's more important, DECspell corrects phonetic misspellings. For instance, for "fizzical" and "newmonya," DECspell returns "physical" and "pneumonia." These "best guess" examples encourage you to expand your own written vocabulary with words you know but can't spell.

Option Menu

After it identifies a misspelled word, DECspell gives you an option menu. You can replace the error with a suggested correction when and where it's identified, or, on VAX systems, you can save time and replace it throughout the document. You can ask for more correction possibilities, manually edit the word, or ignore the word selectively or throughout the document. When you use DECspell on VAX, you can also add the highlighted word to your personal dictionary automatically.

High Degree of Accuracy

In most cases, DECspell returns one suggested correction for a misspelled word, not four to eight like many other systems. Offering more suggestions doesn't make a spelling corrector more accurate; it just makes it slower and harder to use. DECspell gives you the word you need without a lengthy list.

Fast and Interactive

Because of its sophisticated algorithms, DECspell provides interactive verification and correction by showing your spelling errors in context rather than through a batch process. To enhance performance, DECspell's lexicon is organized so that the most frequently used words are found first as your document is checked. Conversely, obsolete and infrequently used words are not searched, which saves time. Also, over time, DECspell becomes even faster, because DECspell recognizes words you've entered into your personal dictionary.

Both British and American Lexicons

DECspell is available in either an American or British English version. Each lexicon contains over 80,000 words—far more than the average user's vocabulary. Variant spellings such as "colour" and "travelled," and chiefly British words like "tyre" are in the British lexicon.

Besides organizing words based on use frequency, DECspell further improves the lexicons with abbreviations, proper nouns, and deletion of valid but obsolete words such as "wether," which probably are misspellings of more commonly used words.

Personal and Shared Dictionaries

DECspell lets you define a personal dictionary of words specific to your occupation or industry. On VAX systems, you can also define up to 10 shared dictionaries, which can be used departmentally or organizationally.

Support for Different Document Types

When it's part of a DECmate system, DECspell works with Digital's standard word processing software, WPS. On VAX systems, DECspell supports a number of different file types. You can use DECspell with an ASCII text document (such as those created with the EDT Editor) or Runoff file, with a word processing document transferred to VAX by DECdx, or with Digital's VAX-based word processing software, WPS-PLUS. You have the flexibility to use DECspell on whatever document you need.

Integrated with WPS-PLUS

You get a number of unique capabilities when DECspell combines with VAX-based WPS-PLUS word processing software. You can call DECspell from within the WPS-PLUS word processing software. You can call DECspell from within the WPS-PLUS editor with a simple Gold Key command. You don't have to leave the document or make a separate pass to correct spelling. Because DECspell is used when documents are created or edited you can check the spelling of a single word, sentence, paragraph, or section of the copy. You need check only those parts of the document that might have changed since the last spelling-verification pass. And if you don't know how to spell a specific word, you can have DECspell check that word immediately and return the correct spelling.

Digital has combined the linguistic expertise of Houghton Mifflin and its own human engineering and office automation knowledge, and the result is DECspell, a language resource for all office workers.

Word Processing

Product Specifications and Ordering Information

WPS-PLUS/ALL-IN-1	1-47
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• WPS-PLUS/ALL-IN-1

Minimum Hardware Requirements

Minimum hardware requirements include any valid ALL-IN-1 Version 2.0 System configuration with at least two megabytes of memory; 16,500 blocks of disk space are required on the disk for installation and 8,300 blocks for permanent use. An R80/RL02 configuration is the minimum requirement for VAX-11/730 Systems. WPS-PLUS/ALL-IN-1 Version 1.0 is not supported on the MicroVAX 1, and distribution media is not currently available for VAX-11/725 Systems. Terminal support includes VT100W series terminal with Advanced Video Option (AV0), VT200 series and Rainbow with LK201 BA keyboard supported as a VT100, and DECmate II or III.

For Technical Character Set Support, the following are required: a VT200 Series Terminal or a DECmate with Version 1.5 software (in CX mode only). A LA100 or LA210 (with TCS ROM option installed), or an LN03, (as LA100, with TCS ROM option installed).

• WPS-PLUS/ALL-IN-1 Ordering Information

Licenses

Q#132-UZ—	License WPS-PLUS/ALL-IN-1 with Warranty
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Q+132-QZ—	VAXCluster License WPS-PLUS/ALL-IN-1 with Warranty
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Support Service

Model

Q#132—*M

Q*132—*H

Q+132—*V

Q+132—*J

* = C,D, + = D,E # = C,D,E Where C = 11/730, D = 11/750, E = 11/780, 11/782

• WPS-Plus/VMS

Minimum Hardware Requirements

- Any valid VAX/VMS system configuration with at least 2 Mbytes of memory, 16,100 blocks (8,243,200 bytes) disk space for installation, and 6,500 blocks (3,328,000 bytes) for use
- R80/RL02 disk subsystem (VAX-11/730)
- VT100W with Advanced Video option (AV0), VT200 series, or DECmate terminals

Minimum Software Requirements

- VAX/VMS Operating System, Version 3.4 or later
- VAX FMS, Version 2.1 (Forms Driver License only)

• WPS-PLUS/VMS

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782* VAX-11/785
License Options:			
A license is required for each CPU			
Single-Use License	QC907-UZ	QD907-UZ	QE907-UZ
VAXcluster License		QD907-QZ	QE907-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC907-HH	QD907-HH	QE907-HJ
	QC907-HM	QD907-HJ QD907-HM QD907-HV	QE907-HM QE907-HV
Software Revision Right-To-Copy Option	QC907-HZ	QD907-HZ	QE907-HZ
Documentation Only Option	QC907-GZ	QD907-GZ	QE907-GZ
Installation Service Option	QC907-IH	QD907-IH	QE907-IJ
	QC907-IM	QD907-IJ QD907-IM QD907-IV	QE907-IM QE907-IV

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QC907-HM = binaries on 9-track 1600 BPI Magtape (PE).

H = RL02 Disk Cartridge

J = RA60 Disk Cartridge

M = 9-track 1600 BPI Magtape (PE)

V = RK07 Disk Cartridge

Z = No hardware dependency

• DECspell VAX DECspell

Minimum Hardware Requirements

- Any valid VAX/VMS system with a minimum of 2,000 disk blocks available during and following installation; for the VAX-11/730, an R80/RL02 configuration is required.
 - When a second lexicon is used, another 1,000 blocks are required.
 - A VT100 or VT52 video terminal, or terminals which fully emulate them (VT200 series, DECmate, Rainbow, Professional).
-

VAX DECspell

Minimum Software Requirements

- VAX/VMS operating system
-

DECmate DECspell

Minimum Hardware Requirements

- Any valid DECmate configuration.
 - Z-80 option board
-

DECmate DECspell

Minimum Software Requirements

- WPS Version 1.5 or later.
-

• VAX DECspell Ordering Information

QWA03-A3	DECmate/DECspell software, single-use license.
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• PROSE-PLUS

Minimum Hardware Required

Any valid P/OS Hard Disk or Disette system configurations

Optional Hardware

None

Prerequisite Software

P/OS Hard Disk, Version 1.5

P/OS Diskette, Version 1.5

Optional Software

None

Software Installation

Customer Installed

Support Category

Digital Supported

DCS Classification

Digital Developed

• PROSE-PLUS

Ordering Information

PROSE-PLUS is available only on RX50 Floppy Diskette distribution media.
QBA11-A3— Single-use license, binaries, documentation, support services

• VAX Smart Mailer

Minimum Hardware Required

Any valid VAX/VMS system configuration:

- One or more video terminals that are VT100 or VT52 compatible.
- 1500 free blocks of storage available for installation.
- VAX/VMS supported printer with label printing capability.

• VAX Smart Mailer Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QCA03-UZ	QDA03-UZ	QEA03-UZ
VAXcluster License		QDA03-QZ	QEA03-QZ
Materials and Service Options:			
Distribution and Documentation Option	QCA03-HG	QDA03-HG	QEA03-HY
Software Revision Right-To-Copy Option	QCA03-HZ	QDA03-HZ	QEA03-HZ
Documentation Only Option	QCA03-GZ	QDA03-GZ	QEA03-GZ
Installation Service Option	QCA03-IG	QDA03-IG	QEA03-IY
Software Product Service Agreements:			
DECsupport Service	QCA03-9G	QDA03-9G	QEA03-9Y
Basic Service	QCA03-8G	QDA03-8G	QEA03-8Y
Self-Maintenance Service	QCA03-3G	QDA03-3G	QEA03-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QCA03-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

• DECpage

Minimum Hardware Required

Any valid VAX/VMS System* configuration with:

- 20,500 disk block space required for installation
- 20,000 disk block space required for execution
- LN01 with 256KB (Rev Level 12) and LP11 Interface
- DECmate I or II Word Processor, WS-200 or WS-78 with communications option
- A VT100 series video terminal

VAX-11/730 Systems

An R80/RL02 configuration is required for 11/730 Systems.

NOTE: DECpage is not supported on VAX-11/725 Systems.

Growth Considerations

The minimum hardware requirements for any future version of this product may be greater than the minimum hardware requirements of the current version.

Optional Hardware

LQP02

Prerequisite Software

VAX/VMS Operation System*

ALL-IN-1 Office Menu, Version 1.2

DECdx/VMS

LN01 SOFT FONT LIBRARY Basic Office Font Package (EAS Library)

• DECpage Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC521-UZ	QD521-UZ	QE521-UZ
VAXcluster License		QD521-QZ	QE521-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC521-HH	QD521-HH QD521-HJ QD521-HM QD521-HV	QE521-HJ QE521-HM QE521-HV
Software Revision Right-To-Copy Option	QC521-HZ	QD521-HZ	QE521-HZ
Documentation Only Option	QC521-GZ	QD521-GZ	QE521-GZ
Installation Service Option	QC521-IH	QD521-IH QD521-IJ QD521-IM QD521-IV	QE521-IJ QE521-IM QE521-IV
Software Product Service Agreements:			
DECsupport Service	QC521-9H	QD521-9H QD521-9J QD521-9M QD521-9V	QE521-9J QE521-9M QE521-9V
Basic Service	QC521-8H	QD521-8H QD521-8J QD521-8M QD521-8V	QE521-8J QE521-8M QE521-8V
Self-Maintenance Service	QC521-3H	QD521-3H QD521-3J QD521-3M QD521-3V	QE521-3J QE521-3M QE521-3V

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC651-HH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge
J = RA60 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)
V = RK07 Disk Cartridge
Z = No hardware dependency

• VAX DECspell Verifier/Corrector

Minimum Hardware Required

Any valid VAX/VMS system configuration with:

- Mass storage with a minimum of 2000 disk blocks available on the system disk during the following installation for both languages.
- When an additional lexicon is used, an additional 1000 blocks are required.
- A VT100 series of VT52 series video terminal is required to run the Verifier or Verifier/Corrector.

VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 Systems.

Optional Hardware

None

Prerequisite Software

VAX/VMS Operating System

Optional Software

None

Training Credits

None

Software Installation

Customer Installed

Support Category

Digital Supported

Customer Responsibilities

Before installation of this software, the customer must

- Previously have installed all requisite hardware including terminals.
- Obtain, install, and demonstrate as operational any modems and other equipment and facilities necessary to interface to Digital's communication equipment.
- Demonstrate equivalency of operation for modems other than DF01, DF02, and DF03, or in Europe, PTT approved modems.

- Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communications facilities, and terminals that are to be used during installation.

Delays caused by any failure to meet these responsibilities will be charged at the then prevailing rate for time and materials.

• VAX DECspell Verifier/Corrector Ordering Information

Options	Systems		
American English Verifier/Corrector	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC650-UZ	QD650-UZ	QE650-UZ
VAXcluster License		QD650-QZ	QE650-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC650-HG	QD650-HG	QE650-HY
Software Revision Right-To-Copy Option	QC650-HZ	QD650-HZ	QE650-HZ
Installation Service Option	QC650-IG	QD650-IG	QE650-IY
Software Product Service Agreements:			
DECsupport Service	QC650-9G	QD650-9G	QE650-9Y
Basic Service	QC650-8G	QD650-8G	QE650-8Y
Self-Maintenance Service	QC650-3G	QD650-3G	QE650-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC650-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• DEType Word Processing Application

Minimum Hardware Required

One of the following:

- Any valid CTS-300 system configuration with 128KB of memory, one printer and two RX02 diskette drives.
- Any valid VAX/VMS system configuration (R80/RL02 configuration required for VAX-11/730 systems).
- Any configuration must include the following:
 - One VT100-NA or VT102-NA terminal with the advanced video option, or VT200-WA or VT102-WA Word Processing Terminals
 - At least 800 free blocks of on-line storage must be available on the system disk for DEType executable images and libraries.

Optional Hardware

- LQP02-AA Letter Quality Printer with LQPX2-AA bidirectional tractor
- Any valid line printer supported by the prerequisite software
- LA100 Letterprinter 100, supported as a draft printer
- Additional VA100-WAs or VT02-WAs
- Any valid disk storage device supported by the prerequisite software
- VT1XX-CE Keyboard upgrade kit for VT200-NA to VT100-WA

Prerequisite Software

CTS-300 Operating System, Version 7.0 or VAX/VMS Operating System

Optional Software

None

Training Credits

None

Software Installation

Customer Installed

Support Category

Digital Supported

• DECType Word Processing Application Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries, documentation, support services.	QC038-AG	QD038-AG	QE038-AY
Single-use license-only option, no binaries, no documentation, no support services.	QC038-DZ	QD038-DZ	QE038-DZ
Update/Unsupported Options Users of VAX DECgraph whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC038-HG	QD038-HG	QE038-HY
Right to copy for single-use, no binaries, no documentation.	QC038-HZ	QD038-HZ	QE038-HZ
Miscellaneous Options Documentation-only kits.	QC038-GZ	QD038-GZ	QE038-GZ

**The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

The following key (G, H, Q, V, X, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ038-AH = binaries on RL02 Disk Cartridge.

G = TU58 DECTape II Cartridge*
H = RL02 Disk Cartridge
Q = RL01 Disk Cartridge
V = RK07 Disk Cartridge
X = RX02 Double Density 8" Diskette
Y = RX01 Single Density 8" Diskette
Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• DECmate II/WPS

Optional Hardware

PC27X-AA	Z80 Auxiliary Processing Unit with 64KB for CP/MSUP/TM application software
RX50-XA	Dual RX50 add-on floppy drives
PC27X-BA	RX01/RX02 controller option board
PCXXF-BA	Floor Stand
LA50-RA/RB	LA50 Receive-only draft printer
LA100-PC	LA100 Receive-only dot matrix printer featuring variable printing resolutions
LA34-WA	LA34 Receive-only draft printer
LA120-RA	LA120 Receive-only draft printer
LQP02-AA	Desktop Serial Letter Quality Printer, 60Hz, 120V
LQP02-AD	Desktop Serial Letter Quality Printer, 50Hz, 240V
LQPSE-FA	Serial Letter Quality Printer, 60Hz, 120V (hardware supported but no longer available)
LQPSE-FD	Serial Letter Quality Printer, 50Hz, 240V (hardware supported but no longer available)

• DECmate II/WPS

Ordering Information

DECmate II/WPS is available only on RX50 Double Density 5¼" Diskette distribution media.

QWA01-A3—	DECmate II/WPS complete package. Includes basic word processing, list processing, sort, math, and communications.
QWA02-C3—	DECmate II/WPS All options, no services, upgrade. Includes list processing, sort, math, and communications. Single-use license, binaries, documentation, no support services.

DECmate II/WPS base software (QF740-A3 is a prerequisite for the following options):

QF741-A3—	DECmate II/WPS List Processing software, single-use license, binaries, documentation, support services.
QF742-A3—	DECmate II/WPS Sort software, single-use license, binaries, documentation, support services.
QF743-A3—	DECmate II/WPS Communications software, single-use license, binaries, documentation, support services.
QF744-A3—	DECmate II/WPS Math software, single-use license, binaries, documentation, support services.

Miscellaneous Options

QF745-GZ—	Documentation-only kit, for all DECmate II/WPS software, including User's Guides, Quick Lookup Guide, Getting Started Card, List Processing, Sort, Communications, and Math manuals.
QF740-GZ—	DECmate II Documentation-only kit, including User's Guides, Quick Lookup Guide, and Getting Started Card.
QF741-GZ—	Documentation-only kit, for DECmate II List Processing software, including List Processing manual.
QF742-GZ—	Documentation-only kit, for DECmate II Sort Software, including Sort manual.
QF743-GZ—	Documentation-only kit, for DECmate II Communications software, including Communications manual.
QF744-GZ—	Documentation-only kit, for DECmate II Math software, including Math manual.
AV-P423A-TA—	DECmate II Introduction to Word Processing training card.
BL-P115A-BA—	DECmate II Introduction to Word Processing computer-based instruction system diskette.
BL-P116A-BA—	DECmate II Introduction to Word Processing computer-based instruction course diskette.
EY-1099E-RC-0001—	DECmate II Introduction to Word Processing training card.
EY-1099E-CW-0101—	DECmate II Introduction to Word Processing computer-based instruction system diskette.
EY-1099E-CW-0201—	DECmate II Introduction to Word Processing computer-based instruction course diskette.
EY-1489E-RC-0001—	DECmate II Advanced Word Processing user card.
EY-1489E-CW-0101—	DECmate II Advanced Word Processing computer-based instruction system diskette.
EY-1489E-CW-0201—	DECmate II Advanced Word Processing computer-based instruction course diskette.
EY-1490E-RC-0001—	DECmate II Word Processing Introduction to List Processing user card.
EY-1490E-CW-0101—	DECmate II Word Processing Introduction to List Processing computer-based instruction system diskette.
EY-1490E-CW-0201—	DECmate II Word Processing Introduction to List Processing computer-based instruction course diskette.
EY-1491E-RC-0001—	DECmate II Word Processing Introduction to Communications user card.
EY-1491E-CW-0101—	DECmate II Word Processing Introduction to Communications computer-based instruction system diskette.
EY-1491E-CW-0201—	DECmate II Word Processing Introduction to Communications computer-based instruction course diskette.
EY-1492E-RC-0001—	DECmate II Word Processing Introduction to Sort user card.

EY-1492E-CW-0101—	DECmate II Word Processing Introduction to Sort computer-based instruction system diskette.
EY-1492E-CW-0201—	DECmate II Word Processing Introduction to Sort computer-based instruction course diskette.
EY-1493E-RC-0001—	DECmate II Word Processing Introduction to Math user card.
EY-1493E-CW-0101—	DECmate II Word Processing Introduction to Math computer-based instruction system diskette.
EY-1493E-CW-0201—	DECmate II Word Processing Introduction to Math computer-based instruction course diskette.
AA-J356B-TK—	DECmate Word Processing Technical Notebook.

Section 3 • Graphics



The graphic representation of information is a key office capability. Information presented through charts, graphs, and pictures help both the presenter and the viewer interpret and communicate ideas. Graphics provide an easy-to-read, often dramatic, high-impact information medium for analysis or presentation. This section describes Digital's graphics software products.

When graphics software and hardware are made a part of the ALL-IN-1 Office Menu system, the user can quickly and inexpensively create those images that get the point across best. With ALL-IN-1, you can select the capabilities that suit your needs.

The key to how easy a graphics product is to use is its level of integration with other office functions and applications. DATATRIEVE and DECgraph, for example, can be used interactively and also can be called by applications programs to access the information you need and format it the way your want it. These products will process the raw data, from many of the databases supported by the VAX Information Architecture, and generate highly legible graphic displays of that information. DATATRIEVE and DECgraph are superior information-management tools for decision support and information display. Both are easy to learn and easy to use.

FINGRAPH creates graphic displays of standard financial information for people who analyze or manage business functions while using such data. It is especially useful for auditors, security, and venture capital partners who use comparative financial information. FINGRAPH displays bar charts that show, for example, all changes resulting from a change on one parameter. This allows analysis of trends and their causes.

DECslide is a tool for the rapid development of presentation graphics. With ease-of-use as the key design parameter, this product can be used by business professionals with a minimum of training, directly from the workstation in their office. Through the use of a 35mm camera, presentation-quality slides can be quickly and easily generated.

POLYGRAFIX is a set of five integrated graphics utilities that provide sophisticated plotting and graphics design capabilities for the technically oriented business professional. POLYGRAFIX offers full editing, plotting, and presentation functions.



All of Digital's graphics products can coexist on a single machine, allowing use of the right product for any given task. They are all callable from a customized ALL-IN-1 menu. A brief overview and the positioning of these products follow.

An Overview of Digital's Graphics Products

DECgraph

- General decision support graphics
- For professionals and managers
- Easy to use by nontechnical users
- High-quality presentation of graphics information from a selection of chart formats—bar, line, pie, etc.

DATATRIEVE

- Used by application developers or interactively accessed via workstation or terminal
- General decision support graphics

FINGRAPH

- Standard financial decision support (balance sheet, operating statement, etc.)
- Specific audience (auditors, security analysts, venture capital partners, for example)
- Graphic display of traditional standard financial data for people who analyze or manage through use of this type of information

DECslide

- Complements DECgraph by providing relatively freeform text and graphic display
- General easy-to-use, rapid preparation of A/V (slide) quality graphics
- Used with Polaroid 35mm slide maker or similar output device

POLYGRAFIX

- Sophisticated capabilities and complexity
- Basic capabilities replaced by DECslide and DECgraph
- For technically oriented users

The following sections describe the capabilities of each of these products.

• **DECgraph**

With DECgraph, an interactive business graphics application, you can create, modify, and disseminate charts and graphs. It increases your productivity by providing necessary decision support easily and efficiently. You can gather information stored in any of several databases on multiple systems and/or simply enter the information directly on a terminal.

You then can design the graph and combine it with data to create a graph for printer or video terminal display. Because the data, design, and graph files are maintained independently, you can modify or store them as you wish, reusing familiar formats as your data changes.

Menu-driven interface

Regardless of your technical experience, you can use DECgraph to design and generate high-quality graphs.

The simple instruction menu helps you produce sophisticated graphics with no loss of productive time.

Also, the ALL-IN-1 system gives you access to larger databases.

Electronically mailed graphics

VMS electronic mail facilities mean that you can mail the graph you create to other workstations, including DECmate II and Rainbow computers.

This enhances communications, saves time, and saves on paper.

Color graphics

DECgraph provides up to 10 palettes with 10 colors per palette. This means that you can control the visual impact of your charts and graphs, and this increased impact means better productivity because your information is retained better by your readers. Color graphics also enhance your image as a professional because your graphics look so professional.

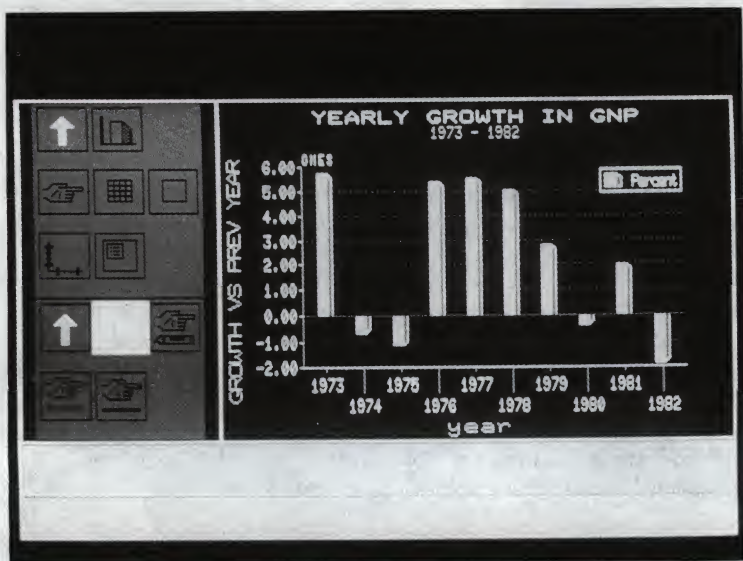
Variety of graph types

You have the choice of six different types of charts from which to choose—line, scatter, vertical cluster bar, vertical stacked bar, pie chart, and histogram. Your data can be quickly redrawn in another chart type with a keystroke, as you evaluate the best format for your message. Besides those, you have further chart options that include drop shadow, fill, trend lines, and isolated pie chart sections. You can plot up to six Y variables for every X variable, and your X values are unlimited.

You can see that your productivity will be increased markedly when you use these detailed, easy-to-read graphics.

Icons

DECgraph's user interface incorporates state-of-the-art Icons. These are special menu pictographs that help inexperienced users to easily learn and use DECgraph. To aid the novice user, there's an outline help facility and task-oriented documentation.



Output flexibility

Your DECgraph charts can be either printed on a black-and-white printer or output to a color hardcopy device that makes them into 35mm slides, overheads, or prints. Charts can be output directly from the terminal with the print key or sent to a VAX shared printer.

Using DECpage, graphs and text can be combined and printed on a laser printer providing attractive compound document output.

This flexibility makes it easy for you to generate graphs for the greatest visual impact with the greatest efficiency. You don't have to redesign charts for reproduction in various media, so you save time and effort.

These and other features like full-screen chart display for easier editing, single or double-sized printing, and simple-to-understand documentation make graphics presentation easy for the user who has little or no computer experience.

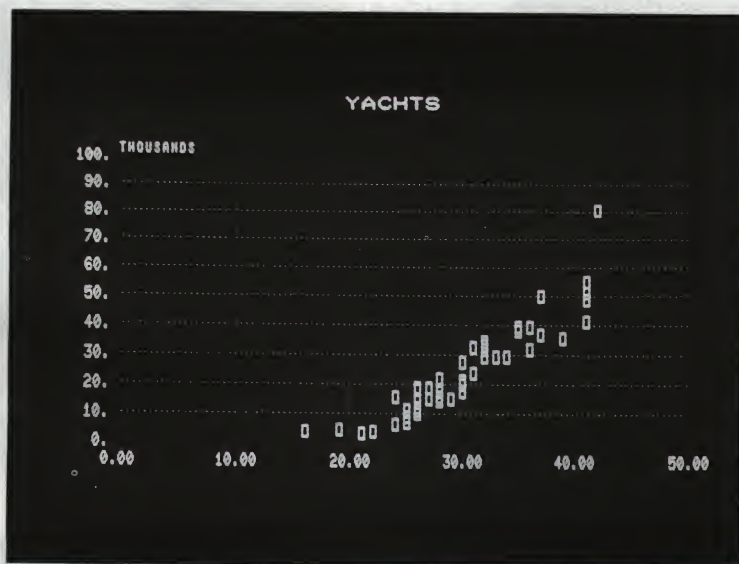
• DATATRIEVE Graphics

DATATRIEVE is a versatile, easy-to-use software tool for data storage and retrieval and report writing and graphics. It's a complete data management package that you can use quickly and profitably, yet it is sophisticated enough to serve the needs of even the most experienced users. Information is at your fingertips. It can give you the big, little, or in-between picture, lets you change perspectives, and helps you produce detailed reports that present facts, statistics, and breakdowns. DATATRIEVE graphics capability includes histograms, bar charts, a variety of pie charts, X-Y scatter diagrams, and time-series graphs.

Above all, it lets you share information with a central VAX/VMS system or a multiprocessor cluster. Freedom of information, therefore, stretches to encompass your whole organization.

Interactive Graphics

With the PLOT statement, you can enhance your reports with graphics. PLOT allows the system to interpret the values in each of the fields you've selected, calculate interrelationships, plot a line on the basis of those calculations, and display it on your screen. These displays can be histograms, bar charts, several varieties of pie charts, X-Y scatter diagrams, time-series graphs, and many others.



With DATATRIEVE PLOT, you get a clear reading of the developed trends; DATATRIEVE allows you better analysis of vital information to give you the competitive edge.

This is only a small portion of the larger DATATRIEVE picture. The graphics capability helps support the greater whole, because DATATRIEVE has the capacity to interpret data rather than merely follow your instructions. Therefore, it can be of significant help in such areas as data management, in which data is organized according to the structures you define; information management, in which established system functions like graphics convert the data into a readable format; and decision support, in which it can help you make informed decisions about the daily operations and future of your organization, and give you the tools to communicate those decisions to your colleagues.

• FINGRAPH

For tracking and plotting vital business data like regional sales, quality-control performance, manufacturing and sales quotas, budget analysis, and market penetration, through parameters that you define, FINGRAPH is an extremely powerful yet easy-to-master information management and decision support tool. Developed by Irwin W. Jarett & Associates, Inc. and Digital, FINGRAPH lets you transform pages of data into graphs. You can see operations and make decisions more easily and with greater accuracy with FINGRAPH information at your fingertips.

FINGRAPH converts financial data into highly legible bar charts that show all changes resulting from a change in one parameter. With this powerful analysis at your disposal, you can identify trends and their causes-information that you need to help make better informed decisions.

Menu-driven

A menu interface makes access to FINGRAPH quick and easy. Because FINGRAPH guides you, it's not necessary to learn a new system. User productivity, therefore, is enhanced.

One-time setup

FINGRAPH stores the initial setups of your charts for future use. You can quickly generate the most often-used ones. You also can regenerate charts to review and compare information quickly. You then have more time to make informed decisions to retain your competitive edge. After the initial one-time design and database linkage is completed, you can regenerate charts whenever the database is updated.

Automatic chart scaling and labeling

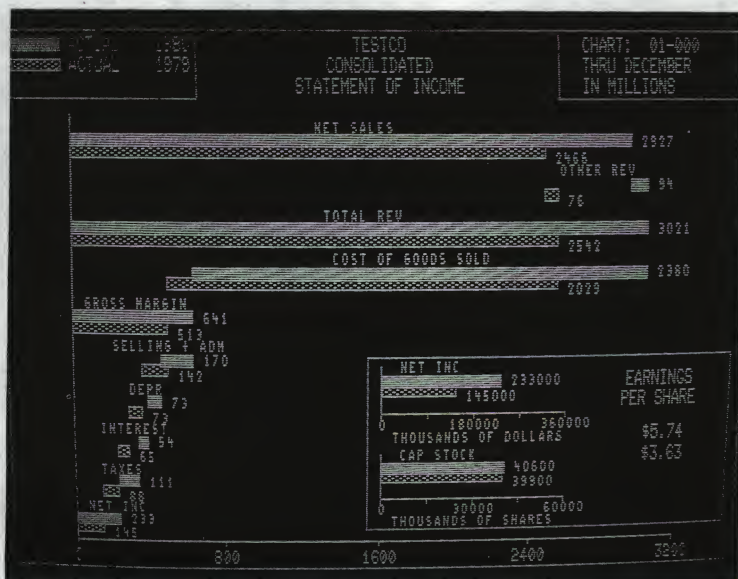
FINGRAPH's design lends itself to showing such performance comparisons as time periods and budgets. When charts and their elements are labeled and in scale, you get a better picture of your business and its operations.

Because scaling and labeling make data easier to comprehend, you save time and increase control over your management functions.

Addition, subtraction, and multicolor elements

Addition, subtraction, totaling, and multicolor elements in FINGRAPH let you isolate and identify various parts of your chart more easily.

By having this comparison tool available, you can compare actual results with forecasts, focus on exceptions, and better understand underlying causes. Here, FINGRAPH helps you retain a competitive edge, reduce or avoid expenses, and analyze and synthesize information in a more timely manner.



A variety of financial performance graphics formats

FINGRAPH displays several standard financial data like income statements and balance sheets, so you can use it at once to analyze common financial data without setting up special formats.

A variety of outputs

FINGRAPH offers slide show capabilities for logical sequencing chart displays and provides print output to either screen or paper through many of Digital's graphic devices.

Through FINGRAPH, you can generate sophisticated business graphics at a fraction of the cost of traditional methods. You automatically increase profits through reduced expenditures, saved time, and increased productivity.

FINGRAPH is invaluable for any business that must control, report, or analyze financial or numeric data. By making complex information easier and quicker to understand, FINGRAPH can give your company a head start on the competition.

• DECslide

The way you present your ideas is the most critical aspect of effective management because a picture really is worth a thousand words. Without using an art department, *you* can create screen presentations with DECslide. You can present both text and charts inexpensively and quickly. Easy to learn and use, DECslide allows you, regardless of your computer or graphic arts expertise, to make single-frame, full-screen images. Unlike DECgraph's plotting capabilities, DECslide allows creation of freeform overhead style output. Slides can be displayed on various Digital monochrome and color monitors, printers; and 3rd party devices (color printers and matrix cameras for 35mm and overhead output). The Rainbow computer can also be used to create and display slides.

DECslide helps you to produce professional-quality presentation graphics that are both practical and easy to create, aspects that make DECslide an efficient, cost-effective means for presentation of your visual data.

Reusable slides/templates

DECslide's Save and Restore keys let you edit and change your slides, after creation, and add them to other directories if you wish. You can then merge a standard boilerplate with your newly created slides if you wish.

With the Save and Restore keys, you can increase productivity and save time by not having to produce an entirely new slide in every instance. You can take a snapshot of your slide anywhere during its construction and store it for future reference. DECslide provides a powerful tool for better and more timely information synthesis.

Menu-driven interface

Standard ALL-IN-1 text menus plus special DECslide submenus help users who have no experience get an easy, step-by-step tutorial in designing, displaying, storing, merging, and printing screen images.

DECslide's ALL-IN-1 menu interface enhances the quality and consistency of the work environment. The results increase productivity and a significantly reduce training expense.

Convenient online help

Online help makes the DECslide system easy to use, even for the novice. Simple question-and-answer formats help you find your way out of any design difficulty.

Because DECslide's help facility works with you it helps your work style, increases your productivity, and increases your ability to make timely decisions.

DECslide's icon interface operates in much the same way as DECgraph's. This means that there's a standardization of symbols. Icons help you select functions and simplify your use of this powerful business tool, because you don't need to remember several unfamiliar mnemonics. At the same time you have a quick and inexpensive way to produce "art-department" presentations.

DECslide keeps you informed

DECslide notifies you of messages received while you're working on slides. The system works the way you work; you can't devote whole, uninterrupted time blocks to one project, so DECslide keeps you informed. The result is that you have more control over your time.

Two-step slide design

DECslide lets you construct images just as if you were using draft tools. Initially, you draw a rough draft, using erasable and changeable lines, text, and objects. Only after you're satisfied do you color or ink the image to complete it. The construction process is at all times visible to you.

Because slide construction is a step-by-step process, you won't be confused when creating a DECslide. You have total control over the quality of the work you produce.

Vivid color enhances your message

DECslide allows you freedom to paint any part of your slide. You can choose from 10 palettes, each with 10 colors.

You have a wide range of choices to customize and dramatize your images. With the flair available, you can present a more forceful message to your audience, attain a competitive edge, and therefore improve your results.

Spread your message around

The Export facility allows slides to be rapidly and accurately mailed to remote users. It puts information or decision-making tools in the hands of those who need it, so the data is current and users have a broader information base.

Good management is good dissemination of information. Presentation of that data in a timely, easy-to-understand manner is vital to you, your staff, and your market. DECslide, an easy-to-learn management graphics tool, can make your management more effective.

Combine DECslides and DECgraphs

With the slide organizer, you can build entire graphic programs. The slides and graphs can be sequenced into slide trays, providing powerful accompaniment to your presentations.

• POLYGRAFIX

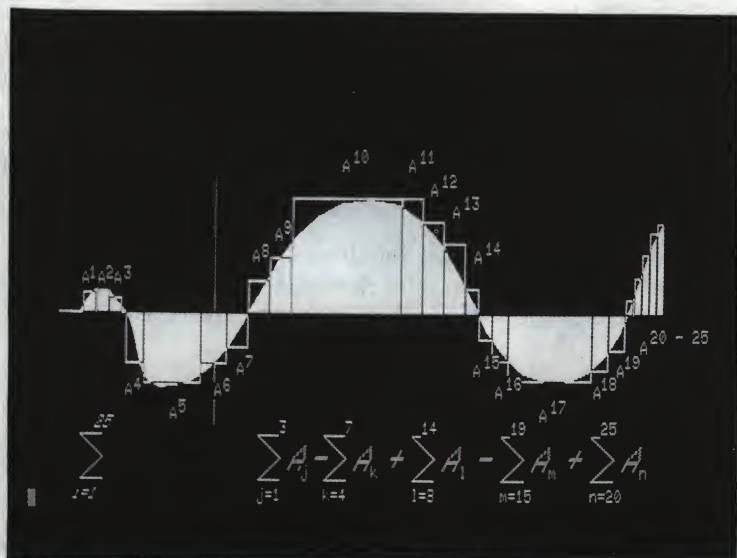
POLYGRAFIX is a set of full-function modular computer graphic packages that can bring your ideas to life. With it, you can simplify complex thoughts and turn them into colorful graphic presentations, analyze and plot data by multicolor charts, and turn text and artwork into illustrated documents quickly and inexpensively.

POLYGRAFIX is a combination of five software packages-Graphic Editor, Data Plotting, Character Set Editor, DEC-RITE, and Slide Projection-that work together or as separate units. These modules, designed to interact with one another, are integrated into the ALL-IN-1 concept to provide a wide-range of graphics capabilities.

Modular, building-block design

Each POLYGRAFIX package supports and enhances the others and can support other Digital's products, within the ALL-IN-1 framework.

This modular design gives you access to a broader information base, and enables you to make more informed business decisions before you put your ideas onto your terminal.



Graphics Editor

The POLYGRAPHIX Graphics Editor Package lets you create pictures that range from a simple word slide to a complex drawing. Simple curves, circles, boxes, and text are your building blocks to powerful visual aids. Because you can see what you're doing, you can create and modify your images dynamically to produce just the effect you want.

The Graphics Editor gives you effective and practical tools for better and more timely analysis and evaluation, and establishes a foundation for more and better data integration. This, in turn, means more informed decisions for a competitive edge.

Data Plotting

The Data Plotting package permits you to translate numbers into pictures and graphs, whether you're creating a corporate balance sheet or a market demographics breakdown. It equips you with spreadsheet analysis and plotting capabilities, and uses basic statistics like mean, range, variance, standard deviation, and percentage, or nonparametric comparative statistics like chi-square.

Because pictures are digested more easily than numbers, the Data Plotting Package presents your message so that productivity is enhanced and both you and your staff have more time to make decisions.

Character Set Editor

With the Character Set Editor, you can redefine your keyboard. If you need characters with special meanings or even an entirely new set of symbols, you can create them using CSE Scientific notations, the Cyrillic alphabet, or your company logo are a keystroke away. You can incorporate them into regular text with no problem. Also, because it's so simple and visually dynamic, you can customize your keyboard without any previous programming knowledge.

Because you don't have to use valuable time to manually modify your presentations, you save both in actual expense and in enhanced work environment. Your presentations are clearer, so you maintain your competitive edge.

DEC-RITE

DEC-RITE creates documents that incorporate graphics and text. You can perform a full range of editing tasks like fill, word wrap, copy, tab setting, search, cut and paste, full cursor motion, and picture placement. And you can watch what you're creating on the monitor as you create it. Combined with POLYGRAFIX's other packages, DEC-RITE is even more powerful. Together they allow you to insert diagrams into your text according to your own layout preferences.

DEC-RITE increases your productivity by permitting easy, time-saving creation of illustrated documents that enhance your persuasive powers and communicate your ideas.

Slide Projection

The Slide Projection Package is an interactive capability that gives you the power to create high-quality slide projections yourself, quickly and inexpensively. You produce the images you want with the Graphics Editor, Data Plotting, or your own previously developed slides. Then you can collect, edit, and display them by slide projection on your monitor or large video projection screen. If you need portability, you can produce the same high-quality graphics in hardcopy with various cameras and other output devices.

The Slide Projection Package is easy to use, so you save time, increase productivity, and better control the time available. Also, you're sure to get your ideas across.

The packages that make up POLYGRAFIX are unique in that they can be purchased and used as separate entities, or purchased and used together to form an extremely powerful, yet easy-to-use, complete graphics presentation system. You can incorporate only what you need, and if you need greater capabilities later, you can add them without fuss. Get the sum or its parts, it's up to you.

Graphics

Product Specifications and Ordering Information

POLYGRAFIX	1-76
VAX DECslide	1-78
FINGRAPH	1-80
VAX DECgraph	1-81

• POLYGRAFIX

Minimum Hardware Required

Any valid VAX/VMS system configuration with a minimum working set size of 150 pages, one or more GIGI (VK100) or VT125 terminals and the following amount of disk space:

- 1000 disk blocks for installation per individual software package
- 1600 disk blocks for program storage

• *For VAX-11/730 Systems*

- An R80/RL02 configuration is required for VAX-11/730 systems

Optional Hardware

- LA34-VA or LA100 Printer

Prerequisite Software

- VAX/VMS Operating system

Optional Software

- None

Installation

- Customer Installed

• POLYGRAFIX

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC211-UZ	QD211-UZ	QE211-UZ
VAXcluster License		QD211-QZ	QE211-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC211-HG	QD211-HG	QE211-HY
Software Revision Right-To-Copy Option	QC211-HZ	QD211-HZ	QE211-HZ
Documentation Only Option	QC211-GZ	QD211-GZ	QE211-GZ
Installation Service Option	QC211-IG	QD211-IG	QE211-IY
Software Product Service Agreements:			
DECsupport Service	QC211-9G	QD211-9G	QE211-9Y
Basic Service	QC211-8G	QD211-8G	QE211-8Y
Self-Maintenance Service	QC211-3G	QD211-3G	QE211-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC211-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

• VAX DECslide

Minimum Hardware Required

- Any valid VAX/VMS System configuration (R80/RL02 configuration is required for VAX-11/730 systems) with a VT125 terminal Rev. 102.

Note: GIGI terminals are not supported.

Optional Hardware

- RGB color monitor, LA12 or LA50 printers (for black and white single size), LA100 or LA34-VA printers (for black and white single or double size).
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

Software Installation

- Customer Installed
-

Support Category

- Digital Supported
-

VAX DECslide Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC361-UZ	QD361-UZ	QE361-UZ
VAXcluster License		QD361-QZ	QE361-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC361-HG	QD361-HG	QE361-HY
Software Revision Right-To-Copy Option	QC361-HZ	QD361-HZ	QE361-HZ
Documentation Only Option	QC361-GZ	QD361-GZ	QE361-GZ
Installation Service Option	QC361-IG	QD361-IG	QE361-IY
Software Product Service Agreements:			
DECsupport Service	QC361-9G	QD361-9G	QE361-9Y
Basic Service	QC361-8G	QD361-8G	QE361-8Y
Self-Maintenance Service	QC361-3G	QD361-3G	QE361-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC361-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge**

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

**The TU58 is to be used in a stand-alone environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

• Fingraph

Minimum Hardware Required

Any valid VAX-11/730, 11/750 or 11/780 system configuration with a minimum of 64K memory for application.

- Program requires 2855 disk blocks

File storage requirements are dependent upon the number of charts, elements, data files and time periods used.

REGIS supported output device (VT125, GIGI, graphic terminal). Optional LA34-RA attached to VT125 terminal for hardcopy output.

Prerequisite Software

- VAX/VMS, Version 3.0
- VAX/VMS DIBOL, Version 1.0

Optional Software

- None

Training

- None

Installation

- Customer Installed

The Users Manual contains instructions for installation and use of FIN-GRAPH. It contains a problem set that shows how to design FINGRAPH charts. Database linkage is described if keyboard data entry is not desired.

Support Category

- Customer Supported

Warranty

- None

This software product is provided "AS IS" without any warranty of any kind either express or implied.

• FINGRAPH

Ordering Information

FINGRAPH is available only on 9-track 1600 BPI Magtape (PE) distribution media.

For VAX-11/780

QA143-CM— Single-use license, binaries, documentation, no support services

QA143-DZ— Single-use license-only option, no binaries, no documentation, no support services

For VAX-11/750

QA144-CM— Single-use license, binaries, documentation, no support services

QA144-DZ— Single-use license-only option, no binaries, no documentation, no support services

For VAX-11/780

QA145-CM— Single-use license, binaries, documentation, no support services

QA145-DZ— Single-use license-only option, no binaries, no documentation, no support services

Additional Copies of Documentation

AA-N363A-TK— FINGRAPH User Manual

• VAX DECgraph

Minimum Hardware Required

Any valid VAX/VMS system configuration (R80/RL02 configuration required for VAX-11/730 systems) with a VT125 Rev. 102 terminal. If the DMF32 is used, it must be at rev. F or later.

NOTE: GIGI terminals are not supported.

Optional Hardware

- RGB color monitor
 - LA12 or LA50 printers (for black and white single size)
 - LA100 or LA34-VA printers (for black and white double size)
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- VAX DATATRIEVE Version 2.0 or later
 - VAX Common Data Dictionary Version 2.0 or later
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Training Credits

- None
-

Software Installation

- Customer Installed

Support Category

- Digital Supported

• **VAX DECgraph**
Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC360-UZ	QD360-UZ	QE360-UZ
VAXcluster License		QD360-QZ	QE360-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC360-HG	QD360-HG	QE360-HG
	QC360-HM	QD360-HM	QE360-HM
Software Revision Right-To-Copy Option	QC360-HZ	QD360-HZ	QE360-HZ
Documentation Only Option	QC360-GZ	QD360-GZ	QE360-GZ
Installation Service Option	QC360-IG	QD360-IG	QE360-IG
	QC360-IM	QD360-IM	QE360-IM
Software Product Service Agreements:			
DECsupport Service	QC360-9G	QD360-9G	QE360-9G
	QC360-9M	QD360-9M	QE360-9M
Basic Service	QC360-8G	QD360-8G	QE360-8G
	QC360-8M	QD360-8M	QE360-8M
Self-Maintenance Service	QC360-3G	QD360-3G	QE360-3G
	QC360-3M	QD360-3M	QE360-3M

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC360-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

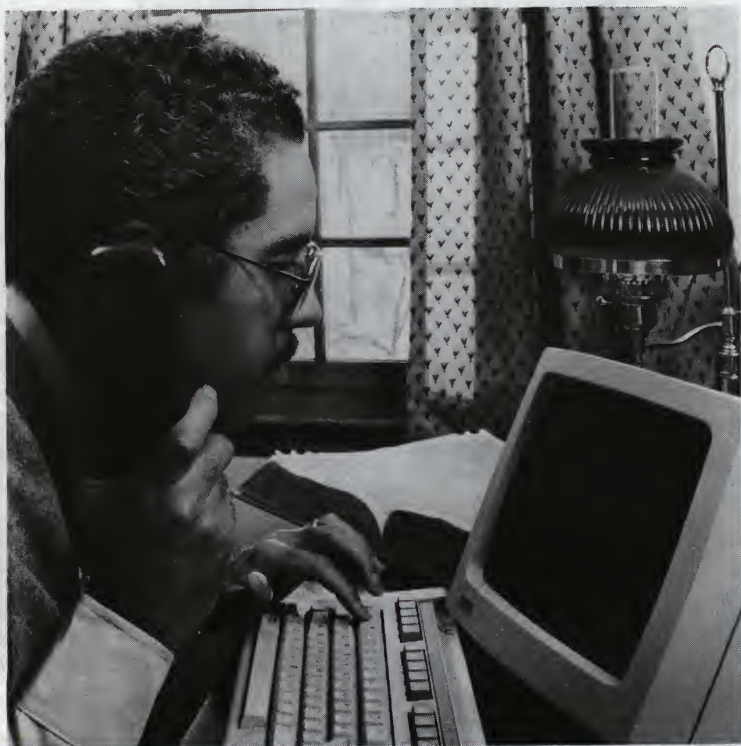
Section 4 • Voice and Electronic Mail

Gates 10-23 →



The measure of any mail service or system is whether or not it transfers information reliably. Digital's electronic mail products meet this objective. They transmit documents, memos, charts, tables, graphics, and data quickly and consistently between people in your organization. And you can use these products to communicate with customers and others outside of your organization, too.

Digital's experience with electronic mail systems has helped it design mail systems to fit the needs of the people who use them. A traveling executive, for example, may not have easy access to a terminal, for reading electronic mail messages. A telephone though, is usually within reach for accessing voice mail messages. Specific products have been developed to address this kind of user need.



• Access by Terminal or Workstation

The primary way to access electronic mail systems is through a terminal or workstation. Digital has two mail systems that work this way.

ALL-IN-1 Mail

ALL-IN-1 Mail, a mail system fully integrated within the ALL-IN-1 Office Menu comes with two different sets of mail menus: DECmail menus, for the user familiar with DECmail, and All-IN-1 CMI (Customizable Mail Interface) menus. The CMI menus are for those familiar with the previous version of the ALL-IN-1 Office Menu, or those who have a need to customize the mail system.

With ALL-IN-1 Mail:

-
- Either set of menus has a full set of electronic mail functions, including read, answer, create, edit, send, forward, file and print.
 - Users can send mail without concern for the status of network connections. Makes use of Message Router to transfer mail between systems in a network.
 - Information from other ALL-IN-1 applications (graphs, spreadsheet output, word processing documents, or DATATRIEVE output), also can be included in mail messages.
 - You can suspend your current job to do some other task and return to where you left off. ALL-IN-1 is interruptable.
 - There are special features that include an online help facility, return mail receipt, automatic mail forwarding, personal status line or message, and automatic calendar meeting scheduling facilities.
-

• VAX DECmail

VAX DECmail, a full-function, standalone electronic mail system, has the following features:

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- It is excellent for dedicated corporate mail networks.
 - It is optionally available for general purpose VAX/VMS systems and VAX ALL-IN-1 systems. (DECmail is not integrated with the ALL-IN-1 Filing Cabinet.)
 - Users can send mail without concern for the status of network connections. Makes use of Message Router to transfer mail between systems in a network.
 - It can be used in either menu or command mode.
 - Special features include: Computer-based instruction, distribution list facilities, and scheduled send, and import facilities for transferring files between VAX/VMS or word processing systems.
 - System management features, including utilities for billing and charging purposes.
-

VMI's Voicemail Information System

Voicemail International's (VMI) Voicemail Information System is a standalone system for voice store-and-forward messaging. It converts and stores voice input in digitized voice format, and sends and receives messages using the telephone. With the Voicemail Information System, you can communicate with others while away from the office without the need for a special terminal. It also provides Voice-Message access to individuals who do not have a terminal or workstation.

ALL-IN-1 Voice Messaging Support

ALL-IN-1 Voice Messaging Support is an optional software product for ALL-IN-1 Version 2.0. It acts as a notification service between ALL-IN-1 Mail and the Voicemail Information System. It is the first product of its kind to create a single point of access for recorded voice messages and electronic mail. Through a single inbox for electronic mail and voicemail you are notified of pending voice mail. Notification is in the form of a text message. From a terminal or workstation running ALL-IN-1 V2.0, you can have Voice Messaging Support dial your phone number and have your voice mail read to you.

Also from your workstation or terminal, you can delete voice mail messages.

This system reduces the time involved to train ALL-IN-1 users on the Voice Mail system, by offering a single set of commands to control the Voicemail Information System, which is consistent with the standard electronic mail commands.

• Mail Transport between Systems

Sending mail across networks requires tools that can guarantee delivery in a timely fashion. These tools are normally not visible to electronic mail system users. They take care of the posting and receiving of mail messages to and from users on other systems. Digital uses Digital's Network Architecture (DNA) to connect computer systems together into networks. Our electronic mail system uses Message Router software to control mail that is sent between systems in those networks.

• **Message Router**

Message Router, a tool that provides a standard mail message interchange, currently conforms to the National Bureau of Standards, Draft Standards for Network protocol, Interface, and Formatting. It has the following features:

- Enables a message exchange between different systems, including VAX/VMS, RSTS/E, and RSX/11m-Plus
- Allows messages destined for systems temporarily unavailable to be stored and forwarded when those systems become available
- Makes available message tracking information is made available to properly manage an electronic mail network
- Can be used by other applications to exchange information or messages between systems

Communication Outside Your Company

Digital's Software Services organization can provide the expertise and tools to connect your ALL-IN-1 system to mail networks outside your company. Software Services specialists can help you determine the most effective way for you to implement and maintain these communication links.

• **ALL-IN-1 Mail**

ALL-IN-1 Mail is an integral part of the ALL-IN-1 Office Menu. It can help you communicate with others in a variety of ways. Because ALL-IN-1 Mail is integrated with the ALL-IN-1 Office Menu, the VAX Information Architecture, and Digital's networking products, it's easy to distribute information electronically from other ALL-IN-1 applications, from databases, and from word processing systems. For example, you can use ALL-IN-1 Mail to notify other users automatically of a meeting that you are trying to schedule; at your request, it can even cancel the meeting for you. You can include words, charts, spreadsheets, and graphics in your mail message.

The ALL-IN-1 Mail features can be customized to meet your specific business needs. ALL-IN-1 Mail can be expanded to include capabilities that help the way you work, and it can continue to change as your needs change. You also can customize the menus and commands to suit your workstyle. Such flexibility provides you with everything you need to solve your communication problems.

A personal mail utility is included with the VMS and RSX operating systems. This utility is suitable for technical users or users with some computer system expertise. This utility offers simple mail functions such as read, send, reply, and forward. It also offers more advanced features to someone who has some operating system expertise. Users of this utility also require an understanding of user accounts and node addressing within a network environment. This utility is not recommended for the inexperienced computer user.

• Mail Access Using the Telephone

Accessing an electronic mail system from a terminal can be fast and efficient but, when a terminal isn't nearby, there is a more practical means of access—the telephone. When away from the office you still need to be kept up to date. In most cases this means calling back to the office and having someone go through your mail, and read those important business and personal messages over the phone. Digital has a number of products to help you use your integrated office system to receive your mail and correspond with others while away from your desk.

DECtalk

DECtalk is a text-to-speech conversion system that offers a high-quality, computer-generated voice. DECtalk can be connected to a speaker or a telephone. It also:

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- Offers a range of voices, speech rates, and intonation patterns
-
- Contains a dictionary that can be loaded with trade terms, acronyms, or product names
-
- Provides a solution for applications that need telephone access and/or voice output of information stored on a computer system
-

DECtalk Mail Access

DECtalk Mail Access is a VAX/ALL-IN-1 option that gives you telephone access to your ALL-IN-1 account. From a telephone equipped for tone-dialling, you can have DECtalk read all or some of your mail. You can answer these messages with a predetermined message, file your messages, or delete your mail messages after they've been read. You also can select any document stored in your ALL-IN-1 filing cabinet and have it read by DECtalk.

-
- It is also possible, from the telephone, to control the speaking rate at which mail is read. You can stop, pause, resume, or repeat any document or mail message currently being read.
-

ALL-IN-1 Mail offers a full complement of general mail functions, including:

- READ incoming or filed memos
- CREATE memos
- ANSWER or respond to memos
- FORWARD memos with automatic generation of a cover memo
- SEND a memo, and answer, or forward memo to another user
- FILE memos in one or more folders using the ALL-IN-1 File Cabinet
- EDIT or revise a memo
- ATTACH a copy of one memo to another
- PRINT a copy of a memo
- ALL-IN-1 File Cabinet options:
- IMPORT or include a system file into a memo
- EXPORT or transfer a memo into a system file
- DX or document transfer capability between ALL-IN-1 and DECmate word processing system

Single Mail System

ALL-IN-1 V2.0 has one mail system with two different, user-selectable, menu interfaces. This helps you make the decision as to which mail system to purchase. ALL-IN-1 Mail uses the best features of CMI and DECmail. Either user interface can be selected in the user's ALL-IN-1 profile.

ALL-IN-1 Mail lets you use the customizable mail interface (CMI) like that of ALL-IN-1 Version 1. This reduces training time for existing ALL-IN-1 CMI mail users. The CMI interface is also customizable, so that it can be tailored to fit your business needs.

You can decide, instead to use the DECmail menu interface. This reduces the training time for existing DECmail users, by offering a familiar user interface.

Fully Integrated

ALL-IN-1 Mail is fully integrated into the ALL-IN-1 file cabinet and base system. It has the same ALL-IN-1 user interface as all of the other ALL-IN-1 applications. Format conversions, which are transparent to the user, can be made where needed.

Same Editor for Electronic Mail and Word Processing

You use the same editor in electronic mail as you use to create documents. You choose the editor (DPE or the optional WPS-PLUS) through your user profile. You don't have to learn a separate editor, for message creation and document creation.

Uses Message Router

ALL-IN-1 Mail uses the Message Router to transport mail between ALL-IN-1 systems in your network. This makes multinode mail system operation and message delivery easier. Message Router conforms to the NBS standard. It provides a store and forward interface to DECnet. Message Router has been used and tested extensively over the past few years and is the multinode option for multinode DECmail and ALL-IN-1 V2.0 systems.

Autoforward

With Autoforward, you can set up your mail to be sent automatically to someone else's mailbox. This lets someone keep on top of your mail while you are out of the office, without giving them access to your account. It also lets you access your mail easily while visiting another company site.

Autoreply

An Autoreply feature lets you set up a reply memo that will be sent automatically to someone who sends you a memo, as it is received. This helps to keep everyone informed, and is useful if you are not going to be reading your mail, (when you're on vacation, or taking a business trip.)

Deferred Delivery

Deferred delivery lets you create a message and specify a time in the future when you want it sent. You can prepare a response before leaving for vacation or a trip and have it sent while gone. This maximizes the use of networking facilities and capacity by allowing documents and messages to be sent overnight, when the network isn't as busy. Deferred delivery lets you create a reminder message when you think of it so you don't forget later. When you are setting up a meeting, for example, you can create a message to be sent two days before the meeting, reminding participants that they should bring their draft plans.

Priority and Classes of Mail

With ALL-IN-1 Mail, you can specify three classes of mail when sending a message. This lets you get urgent messages to their recipients faster.

Delivery Notification

When a message arrives in its recipient's inbox another message, saying that the original message was received, is returned to the sender. This lets you know that your message has gone across the network and has been delivered.

Return Receipt Notification

Return receipt notification goes a step beyond delivery notification. This facility returns a message to the sender when the recipient reads the message, letting you know when a message has been read.

Nickname List

With the nickname list, you can create nicknames for people to whom you frequently send mail. You then only need to use the nickname when creating a recipient list. This saves time in addressing messages.

Distribution List

You can create a distribution list, and use the list name to send the information. Lists can either be personal or shared with those on your node. This simplifies addressing and sending information, especially to large numbers of recipients or frequently addressed groups.

• VAX DECmail

To address the important communications needs of your office, Digital offers a powerful, and standalone electronic mail product called VAX DECmail. This electronic mail capability combines our proven network communications products with an easy-to-learn and easy-to-use menu-driven user interface.

DECmail is optionally available on the ALL-IN-1 Office Menu. It provides a complete set of mail, messaging, document-management, and document-transfer capabilities necessary for a corporate-wide mail network.

Total Capability Electronic Mail

DECmail offers a full complement of general mail functions, including:

- READ incoming or filed memos
- CREATE memos
- ANSWER or respond to memos
- FORWARD memos with automatic cover memo generation
- FILE memos in one or more folders
- EDIT or revise a memo

- ATTACH a copy of one memo to another
- DETACH or break up a memo into component pieces or attachments
- PRINT a copy of a memo
- IMPORT or include a system file into a memo
- EXPORT or transfer a memo into a system file
- DX or document transfer capability between DECmail and a DECmate word processing system

Menu-driven or Command Mode

The options and capabilities of DECmail are presented to you in menus. These menus guide you through the entire process of working with the product. Simple keystroke responses to the menu options make DECmail work for you. Powerful electronic mail functions can easily and quickly be invoked with little or no training.

DECmail gives users flexible access to your messages by accommodating different users' workstyles and environments. For experienced users already familiar with the menus and commands, the abbreviated command mode can be used to bypass menus. For users that don't have access to video display terminals or workstations, command mode can be used with hardcopy terminals. In the same way, users that access the system over slow-speed dialup lines can use command mode to avoid displaying the menus on the screen.

User Profile

DECmail catalogues information about you so that it can be retrieved and used to fill in the headings for your memos, provide other users with nonconfidential information about you (your name, title, department, telephone number, and other pertinent business information), and generally facilitate the functions of electronic mail.

Distribution Lists

You can easily establish and maintain your own distribution lists for mailings to groups of people. Memos to groups of people with a common interest, relationship or "need to know" can be accomplished quickly and easily through DECmail's powerful distribution list capability. Rather than addressing a memo to a large number of people by indexing all of their names, the simple typing of the group's name is all it takes to send the memo to all the members. Because you develop the distribution lists yourself, this capability can be tailored to meet your unique messaging needs. Lists can be created or changed quickly and easily to accommodate your needs.

Mail Networks

DECmail users can exchange messages with users on other computer systems. Through the Digital Network Architecture and Digital's Message Router product, thousands of users can be tied together to communicate with each other using electronic mail. Best of all, to use this powerful and extensive networking capability requires no technical expertise or involvement by you, the user.

All you need to know is the name of the person to whom you wish to send a message. Electronic mail takes care of finding the recipient's computer address and routes the message over the communications network. And you do not have to be concerned about resending a message if the communication links to other systems are busy or unavailable. The electronic mail system will automatically forward your message to its recipients when the network becomes available.

- *Computer-Based Instruction*

The animated computer-based instruction modules that are included with the DECmail product take a fun approach to teaching how to use the product. Novice users can learn at their own pace. Experienced users easily can refresh their memories on certain functions.

- *Scheduled Send*

DECmail has the flexibility to defer sending a message to any particular date and time that you specify. In this way you can instruct the system as to when you want a message sent. This is particularly useful if you want to send messages during times when telephone line rates are less expensive, or if you want to send "reminder" messages when you're not in the office.

- *Nicknames*

One of the ways that DECmail is easy to use is its ability to let you assign nicknames to users with whom you frequently correspond. You can use the nickname that you defined when you reference other users or fill in prompts when addressing a memo.

- *System Management and Accounting*

DECmail provides an extensive set of utilities to help the system manager set up user accounts, monitor system usage, and verify message databases. All of the information is extremely useful for keeping a mail network, reliable and available and for billing users or departments for its use.



• DECtalk

DECtalk's powerful and exciting text-to-speech system converts standard ASCII text from a computer system into natural, life-like speech. Using a unique, state-of-the-art combination of voice, microprocessor, and signal-processing technology, DECtalk offers voice quality and flexibility unparalleled in the industry.

Before DECtalk, if users wanted computer-generated voice for an application, they had to settle for simple messages and robot-like voices. DECtalk advanced the standard for computer generated voice by, producing natural, human-quality speech with an unlimited vocabulary.

Physically, the product is a small, modem-sized unit that is connected to a computer via an RS232C (standard) terminal port. The unit can be compared to a printing terminal, except instead of printing, it talks.

Unlike less advanced systems, DECtalk's vocabulary is unlimited. Its large, built-in dictionary includes familiar and frequently used words, numbers, and abbreviations. A user can also build an auxiliary dictionary for trade terms, acronyms, and other special words.

In addition to its dictionaries, DECTalk's library of letter-to-sound rules increase its pronunciation capabilities even more. With these rules, DECTalk can generate educated guess pronunciations for unfamiliar words or letter combinations not found in its dictionaries.

High-quality speech, however, requires more than just precise pronunciations. It requires voice variety as well. This, too, is a unique feature of DECTalk. DECTalk speaks in a wide range of voices, speech rates, and intonation patterns to give messages both variety and emphasis. The user can choose from a variety of voice types, speaking rates, and pronunciation and intonation patterns. The voice types are either male, female, or child. The rate of speech ranges from 120-to-300-words per minute. DECTalk offers a selectable mode so that it can speak full sentences, a word at a time, or a letter at a time. Its flexibility works to meet your needs.

DECTalk has the flexibility to support a broad range of applications. It can be configured as part of a system sending voice output to a speaker, or it can interact with a user over a common telephone. DECTalk's Touch-Tone phone decoding capability means you can develop interactive applications using a standard telephone Touch-Tone keypad remotely to input data into the system. The output, or required information, can be spoken by DECTalk. DECTalk also can be used with a video display terminal or workstation to provide voice translation of displayed text.

For the office, DECTalk provides convenience, control, and flexibility. Users who do not have immediate access to a terminal or workstation, can access their electronic mail using a telephone. Remote or on-the-road professionals can use any standard telephone to read their mail, access electronic calendars, or proofread word processing documents any time of the day or night. DECTalk also can be used for voice output in training and instructional applications.

Users can access electronic mail messages from any location, at any time, over a standard telephone. DECTalk can provide voice renditions of training or instructional information. It can also be used to access electronic calendars, and transfer or read documents and files.

State-of-the-Art Technology Application

DECTalk converts to high-quality, user-selected speech text that is either resident on or input into a computer.

Using a combination of sophisticated voice, microprocessor, and signal processing DECTalk provides unparalleled voice quality and flexibility. DEC-

talk speaks in a natural, human-quality voice with precise pronunciation and unlimited vocabulary. So DECTalk is easy to understand and very effective.

Unlimited Vocabulary

DECTalk incorporates two dictionaries. The main dictionary includes a comprehensive collection of familiar and frequently used words, numbers, and abbreviations. You can also specify words like trade terms and acronyms for an auxiliary dictionary.

DECTalk's unlimited vocabulary makes it the most effective and flexible text-to-speech conversion system on the market. You won't need to write messages around system vocabulary constraints because DECTalk delivers your messages the way you want them delivered. DECTalk can even incorporate your industry's or corporation's jargon and product names.

Sophisticated Pronunciation Capabilities

DECTalk incorporates an extensive library of letter-to-sound rules. This allows DECTalk to generate an educated guess pronunciation of unfamiliar words or letter combinations that are not found in its two dictionaries:

This increases DECTalk's pronunciation capabilities and broadens DECTalk's applications.

Voice Variety

DECTalk speaks with a wide range of voices, speech rates, and intonation patterns. Voice types can be male, female, or child. Speech rates can range from 120 to 300 words per minute, and the speaking mode can be either full sentence, word-at-a-time, or letter-at-a-time.

DECTalk speaks in a natural, human-quality voice.

Flexible DECTalk Uses Range of Output Devices

DECTalk can output to its integral speaker, an auxiliary speaker, or a telephone. This flexibility in devices used for output, or delivery of messages, allows you to choose the most appropriate means of delivering your message.

DECTalk offers Unique Applications Opportunities

With DECTalk you can develop unique and unusual applications. For instance, you can enhance your grasp of the charts and graphs that the ALL-IN-1 system generates by having DECTalk explain the meaning of the graph segments while you study them. Your comprehension will improve because you can concentrate on the figures. You get the information you want more quickly and accurately. Also, DECTalk presents an unusual and almost fool-proof way to show narrated slides.

DECtalk is useful as a tool for the learning disabled and the blind; the learning disabled sometimes reverse letters and words while reading, and have to slow down to decipher what's there. With DECTalk, they can just listen. Also, turning writing into speech can make a blind person more productive. People who can't see can write, and DECTalk as a proofreader can be a valuable assistant. There are many other applications that lend themselves to DECTalk's unique abilities; its use is limited only by your imagination.

• DECTalk Mail Access

DECTalk Mail Access is a VAX/ALL-IN-1 software application which provides you with convenient access to your electronic mail from any telephone equipped for tone dialing. DECTalk Mail Access takes advantage of the high-quality, text-to-speech capabilities of DECTalk.

DECTalk is a text to speech system which allows standard ASCII text to be converted to understandable speech. The synthetic speech produced by DECTalk can be output to a speaker or telephone.

From the telephone you can:

- Listen to all new mail messages or select specific mail for reading
- Delete mail messages
- Retrieve and listen to ALL-IN-1 documents
- Answer mail with a prewritten reply
- Stop, pause, resume, and repeat the reading of mail
- Adjust the speaking rate at which mail is being read
- In addition to mail messages, DECTalk Mail Access allows you to access text documents stored in your ALL-IN-1 file cabinet.

The following departments and individuals will find DECTalk Mail Access invaluable:

- Field and sales departments
- Customer service and support departments
- Traveling executives
- Marketing and communications departments

DECTalk provides remote access to electronic mail. Messages can be accessed remotely from home or while on-the-road, when a portable terminal or hardcopy device is impractical or not cost effective.

With DECtalk Mail Access, keyboard-shy managers and executives have an easy way to scan their electronic mail, reading critical items and leaving the remainder for printing/processing by their secretary.

Since DECtalk Mail Access allows telephones to serve as inexpensive terminals, this increases the number of potential users of electronic mail. The purchase of a system can be justified this way.

DECtalk Mail Access has an easy-to-use telephone interface that includes voice prompts and a help facility to allow you to access your messages.

Improves Interpersonal Communication

The major business problem that DECtalk Mail Access solves for you is that it improves internal communications. It turns the everyday tone-dial-equipped telephone into a terminal for accessing information. This means that users of ALL-IN-1 can be in a telephone booth on the road, in a hotel room or, even at home and still have access to important mail messages and information.

Digital is the only vendor today that can extend the benefits of generalized office automation to users who aren't at their desks, without requiring that they purchase an expensive portable computer or carry around a cumbersome hardcopy terminal.

VMI's Voicemail Information System

Voicemail International's (VMI) Voicemail Information System gives you all the capabilities, speed, accuracy, and security of text-based electronic mail, but offers the added feature of voice-handling capabilities. From a standard tone-dial-equipped or rotary-dial telephone anywhere in the world, you can access the system to send, receive, file, or delete voice messages to another person, whether that person is a subscriber to the system or not. This added capability of voice personalizes the message and, more importantly, greatly expands the accessibility and flexibility of communications.

The Voicemail Information System offers you timed delivery so that you can have the message or information delivered to whom you want, wherever that person may be, when you want it delivered. You can schedule a message for delivery up to nine days later, making the Voicemail Information System a boon to the business organization with on-the-road personnel who do not always have access to a terminal or workstation. Sales representatives, for example, can receive or send important business communications any time of

the day or night from a standard telephone. Sales managers can provide sales leads, set up meetings, or request account updates with the Voicemail Information System. Your company's engineers and technicians can call in for next-call assignments, updates on the delivery of machine parts, or for any other up-to-the-minute information.

VMI's Voicemail Information System consists of a Digital Equipment Corporation computer, a proprietary sound and voice processing device called the "Big Talker," and proprietary software development by Voicemail International.

Voicemail International's Big Talker hardware and software subsystems convert the human voice into a form that can be used by a computer. Once converted, or digitized, the voice message is directly sent to a system disk, bypassing the computer's CPU. This direct deposit to disk frees up the system, prevents bottlenecks and the high-system overhead associated with other types of voice messaging systems. Once digitized, the message can be retrieved from the disk or disks and handled by the computer system just like any other information. It can be stored, forwarded to another person, delivered, filed, retrieved, or deleted.

The basic Voicemail Information System lets you:

- Send a message
- Cancel a message
- Send a message for delivery up to nine days later
- Time-and-date stamp and check a message
- Perform message forwarding with up to six telephone numbers
- Perform VIP message forwarding when only messages from selected callers will be forwarded
- Broadcast group messages
- Save messages
- Replay messages
- Delete messages
- Skip forward through messages for quick review
- Automatically headup a response to eliminate the need to enter the addressee's box number

A standard telephone is used to create or access the message. The user's key to invoking the message-handling functions of the Voicemail Information System is the standard keypad for tone dialing. If tone dialing is not available, Voice Messaging operator-assistance is activated automatically. The delivery or output of the message is done via the telephone. The message is read by the system in the sender's natural voice because the Voice Messaging System employs a high-quality reproduction process incorporating state-of-the-art electronic recording techniques.

The Voicemail Information System does not need PBX supervision. It is FCC-licensed and approved for direct connection to the public switched telephone network. This eliminates the costs of a PBX.

Voice Medium for Electronic Mail

VMI's Voicemail Information System uses the medium of voice to transfer information contained within mail messages.

Voice gives you maximum messaging flexibility and offers:

- Intonation/inflection capability for emphasis, or effect
- Ease of message creation
- Ease of message comprehension (speech is the most commonly used communicative interface)
- Messages can be created and received flexibly (no need for terminal or workstation access—messages can be created or received at or from any standard telephone worldwide, any time of the day or night)
- Can be used by the visually impaired

These features of the Voice Messaging System work to communicate your information in a flexible and powerful way, overcoming traditional barriers to communication.

Identification Code Protection

The Voicemail Information System checks for a valid user identification code before access is permitted.

Use of or access to your account is protected. The Voice Messaging System gives authorized users quick access when they enter the proper seven-digit code defined as your key.

Quick Scan and Retrieval of Waiting Messages

Quick access to selected messages allows you instantly to play, replay, or save important or interesting messages.

VMI's Voicemail Information System lets you scan your message inbox quickly and select one or more that you want to hear right away. Important messages can be saved and replayed at any time. These important features give you a system that is both flexible and secure.

Message Forwarding Capability

Messages can be forwarded automatically to any location. Critical information is never lost or delayed if you happen to be elsewhere. The message can still get through to you with no compromise in time or effectiveness.

VIP Message Forwarding

The forwarding function can be reserved (or invoked) only for messages from a specified list of callers.

This gives you all the benefits of "do not disturb," but still allows the important messages to get through to you. You determine the list of senders whose messages will be forwarded.

Timed Delivery and Reattempts

You can control or specify the delivery time and date as well as the reattempt frequency (if initial delivery is impossible).

Important or time-dependent messages can be sent when you want them to be sent. If the receiver is not available at the originally designated time, you can designate alternative delivery times (or reattempt schedule). This powerful feature allows your messages to be time-controlled for maximum effectiveness.

Message Broadcast Capability

You can deliver a single message to a large group of individuals simultaneously. VMI's Voicemail Information System lets you simultaneously send your message to a large group of people. Your important messages can be timely and consistent.

Tone-Dial Equipped or Rotary-Dial Capability

The Voicemail Information System can be used from either a tone-dial-equipped or a rotary-dial phone. This unique feature offers extreme flexibility to personnel when they're on the road. Your important communication gets through regardless of phone type, location, or time of day.

Printed Call Activity Report

The Voicemail Information System can generate a printed itemization of all messaging activity. This hardcopy audit trail can be used for verification, confirmation, or tracking purposes. Vital communication activity is tallied and can be monitored.

Message Box

You can offer access to your message box to anybody. Even nonsubscribers can call a user, hear a user-delivered message, and leave a message.

This added feature gives you or your organization a powerful customer service tool. Communication to or from nonsubscribers and subscribers broadens your communications boundaries.

Voicemail International's Voicemail Information System can be connected to your ALL-IN-1 system using ALL-IN-1's Voice Messaging Support. Notification of any new Voice Messages are displayed in your ALL-IN-1 Mail inbox. Using your ALL-IN-1 System, you can also have VMI's Voicemail Information System dial your telephone and read your mail to you.

• ALL-IN-1 Voice Messaging Support

ALL-IN-1 Voice Messaging Support is a VAX/ALL-IN-1 software application. It gives the ALL-IN-1 user automatic notification on the user's terminal of any new voice messages that have arrived on a Voicemail International Voice Information System, connected to the user's ALL-IN-1 system. Notification is in the form of a text mail message delivered to the user's electronic mailbox.

Using keyboard commands the user can initiate a call to their telephone and have a specific voice message delivered. Keyboard commands also can be used to delete a specific voice message.

This product will be of interest to anyone interested in voice messaging systems that can be integrated with their office systems.

ALL-IN-1 Voice Messaging Support is an optional software enhancement to the ALL-IN-1 Office Menu, which provides an interface to a Voice Messaging System. The product requires that you have an installed Voicemail International Voice Information System.

Some of those who would benefit from ALL-IN-1 Voice Messaging Support are:

-
- Field & sales departments
 - Customer service and support departments
-

-
- Traveling executives
 - Marketing & communications departments
-

Single Inbox, Keyboard Control

ALL-IN-1 Voice Messaging Support has a single point of access for all mail messages. This makes both electronic mail and voice messaging more effective tools by consolidating the number of sources you must check to determine if you have new messages. You can access either kind of message from the same keyboard, with the same menu.

Improves Communication between Groups

ALL-IN-1 Voice Messaging Support improves internal communication by providing a single inbox for both electronic mail and Voicemail messages. Many times office systems are installed in phases. In those phases some people may get voice messaging accounts, others electronic mail accounts, and still others will have both. With ALL-IN-1 Voice Messaging Support, all of these users can communicate with each other.

• Message Router

Message Router, Digital's powerful communications software, puts new communications capabilities into your office. Message Router can bring to your office the exciting and valuable concept of international document exchange.

As the name implies, international document exchange transfers documents or messages across previously impenetrable systems boundaries. It sends information, documents, or messages across systems with different operating systems, and across multiple nodes of the same operating system, which previously was impossible. Message Router, supports major complex communication networks and makes possible truly effective multinode office automation applications.

Message Router Conforms to Communications Standards

The Message Router design strictly conforms to the existing Draft Standards for Network Protocol, Interface, and Formatting developed by the National Bureau of Standards (NBS) for Message Handling.

Message Router's conformity to these accepted standards gives you total flexibility in communicating or exchanging messages and documents among other conforming systems, both now and in the future as these standards evolve over time.

Handles Messages in a DECnet

Message Router is the analogue of the post office. It provides the office message-handling services necessary for distributing information in a DECnet network environment. It runs on the VAX/VMS, RSTS/E, and RSX/11M-PLUS operating systems. With Message Router, applications like electronic mail can exchange information with other applications running on office computer systems connected by DECnet.

Communicating with other systems in a network gives office systems users access to more information, and lets them talk to a greater number of users. This means better, faster decisions.

Message Store and Forward Capability

Message Router stores messages awaiting transport across DECnet communication links and forwards them when the network becomes available. Message Router makes it possible to send messages in a network without concern for the status of the network communications links. It eliminates the need for you to continually resend messages due to busy or unavailable communications links. It eliminates the need to tie up a terminal when sending lengthy documents or messages. Message Router stores your documents or messages, and forwards them across the communications links to the designated receivers when the network becomes available.

Message Tracking Information

Message Router has the message tracking features necessary for moving information through a network. It provides information for the system or network manager, such as when a message was received by another node, who sent the message, and the length of the message. It also sends a delivery confirmation message back to the originating system when a message has reached its final destination. The benefits of this are twofold. First, message delivery is extremely reliable because of the Message Router's knowledge of the whereabouts of a message in the network, and second, the network or system manager can trace messages and analyze network traffic.

Interface to Applications

Message Router can be used as a tool to send messages between many different applications and can be linked into other mail systems, messaging services, or public data networks. Users can write their own user agents or gateways to exchange information using Message Router.

The ability to communicate with other vendors, to connect to external mail systems, public networks, or customer-written applications gives Message Router unmatched flexibility in office communications.

Voice and Electronic Mail

Product Specifications and Ordering Information

ALL-IN-1 Voice Messaging Support	1-106
VAX Dow Jones Access	1-108
DECtalk	1-109
VMI's VOICEMAIL	1-110
VAX DECmail	1-112
DECtalk Mail Access	1-115

• ALL-IN-1 Voice Messaging Support

Minimum Hardware Required:

Any valid VAX/VMS system configuration, except as noted, with:

- Voicemail International, Inc.'s voice store and forward VOICEMAIL* system connected to the VAX by a local high speed DMR11-CP interconnect link.
- Mass storage with a minimum of 2300 disk blocks available during and following installation.
- A VT100 series or VT52 series video terminal is required for ALL-IN-1 Voice Messaging Support system management and for the ALL-IN-1 user interface.

VAX-11/730 and VAX-11/275 Systems:

1. An R80/RL02 configuration is required for VAX-11/730 Systems.
2. VAX-11/275 systems are not supported.

Optional Hardware:

- None

Prerequisite Software:

- VAX/VMS Operating System Version 3.5 or later
- ALL-IN-1 Office Menu Version 2.0
- DECnet-VAX
- Message Router/VMS
- VAX-11 EMS Version 2.0

Optional Software:

- None

Installation

ALL-IN-1 Voice Messaging Support software can be installed by the customer using the step-by-step documentation available for this product. Optionally you can purchase DIGITAL Installation Services which provide for the installation of the software product by an experienced DIGITAL Software Specialist.

DIGITAL's Installation Services can be purchased as a separate service.

Courtesy Installation Service

This software product will be installed by DIGITAL at no additional charge if you purchase Installation Service for ALL-IN-1 Office Menu and you install both software products concurrently.

The installation of the VOICEMAIL* system is covered by Voicemail International, Inc.'s terms and conditions.

• **ALL-IN-1 Voice Messaging Support**
Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780, 2*,5
ALL-IN-1 Voice Messaging Support			
License options: A license is required for each CPU.			
Single-Use License	QC089-UZ	QD089-UZ	QE089-UZ
VAXcluster License		QD089-QZ	QE089-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC089-HG	QD089-HG	QE089-HM
	QC089-HM	QD089-HM	QE089-HY
Software Revision Right-To-Copy Option	QC089-HZ	QD089-HZ	QE089-HZ
Documentation Only Option	QL089-GZ	QL089-GZ	QL089-GZ
Software Product Service Agreements:			
Basic Service	QC089-8G	QD089-8G	QE089-8M
	QC089-8M	QD089-8M	QD089-8Y
Self-Maintenance Service	QC089-3G	QD089-3G	QE089-3M
	QC089-3M	QD089-3M	QD089-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g.

G = TU58 DECTape II Cartridge

M = 9-track 1600 BPI Magtape (PE)

Y = RX01 Floppy Diskette

Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX Dow Jones Access

Minimum Hardware Required

Any valid VAX/VMS system configuration with:

- VT100 video terminal(s)
- DF02-AC or DF03-AC Autocall Modem
- Terminal interface with modem control
- Approximately 500 blocks of disk space for Dow Jones VAX-11

Optional Hardware

- Additional DZ-11 line, and DF02-AC or DF03-AC modems up to a system total of 8.

Prerequisite Software

- VAX/VMS Operating System, Version 3.4
- Dow Jones account (available thru Dow Jones and Company)

Optional Software

- ALL-IN-1 Office Menu, Version 1.2

Training Credits

- None

Installation

- Customer Installed

Support Category

- Customer Supported

• VAX Dow Jones Access

Ordering Information

QA354-C—	Single-use license, binaries, documentation, no support services (Media: G, Y, Z)
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The following key (G, Y, Z) represents the distribution media for the product and must be specified at the end of the Order Number, e.g., QA354-CG = binaries on TU59 DECtape II Cartridge.

G = TU58 DECtape II Cartridge

Y = RX01 Floppy Diskette

Z = No hardware dependency

• DECtalk

DECtalk Specifications

Dimensions	Height: 4 in (10.0 cm) Width: 18 in (45.0 cm) Depth: 12 in (30.0 cm) Weight: 16 lb (7.3 kg)
Interface	Connection to any Digital system supporting RS232C serial port and XON/XOFF protocols
Baud Rates	110, 300, 600, 1200, 75/1200, 2400, 4800, 5600
Format	ASCII characters 7 bits and even 7 bits and odd 8 bits and none ANSI-compatible control sequences
Electrical Requirements	95 to 128V, 47 to 63 Hz, or 190 to 256V. 47 to 63 Hz
Operating Conditions	Relative Humidity: 10% to 90% Temperature: 10° to 40°C 50° to 104°F

• DECtalk

Ordering Information

DTC01-AA—	DECtalk. English-speaking text to speech board, speech analog and telephone output.
-----------	---

• VMI's Voicemail System

Minimum 11/24 hardware configurations required to support Voicemail are:

VMS/4	VMS/8	VMS/16*
(1) PDP-11/24 w/1MB memory	(1) PDP-11/24 w/1MB memory	(1) PDP-11/24 w/1MB memory
(1) RX211-BA	(1) RX211-BA	(1) RX211-BA
(1) RUA60-CA	(1) RUA60-CA	(1) RUA60-CA
(1) DZ11-HP	(1) DZ11-HP	(1) DZ11-HP
(1) RAU81-AA	(1) RAU81-AA	** (1) RUA81-CA or (1) RUA81-CA plus (1) RUA81-AA or (1) RUA81-EA
(2) VT100-AA	(2) VT100-AA	(2) VT100-AA
(1) LSP26-CA	(1) LSP26-CA	(1) LSP26-CA
(1) Addtl. Cab***	(1) Addtl. Cab***	(1) Addtl. Cab***

NOTES:

*VMS/16 is optionally offered in a dual-processor configuration for those customers who require redundancy.

**Disk requirements will vary depending on subscriber population supported and amount of message storage required. Please contact Voicemail International before recommending configurations to customers.

***Additional cabinetry is required to house RA81 drive(s) and/or "Big Talker" cards. Please contact Voicemail International before recommending cabinetry to customers.

Configuring the System for Given Number of Users

Two parameters are necessary when sizing a Voicemail System to meet the customer's requirements. The first parameter is the number of users that need access during the busiest hour of the day given infinite mass storage capabilities. The second parameter is the amount of voice message storage capacity required to support a given number of users.

The diagram below gives general guidelines for what model Voicemail System is right for a given number of users, requiring a specific amount of message storage.

Voice Storage Capacity (MB)	NUMBER OF USERS SERVED				
	100-200	200-350	350-500	500-1000	1000-2500
100	VMS/4	VMS/4	VMS/8	VMS/8	VMS/16
200	VMS/4	VMS/4	VMS/8	VMS/8	VMS/16
300	VMS/4	VMS/4	VMS/8	VMS/8	VMS/16
400		VMS/8	VMS/8	VMS/8	VMS/16
800					VMS/16

Pricing/Ordering Information

All standard Digital hardware involved in a Voicemail System configuration must be ordered directly from Digital at current MLP.

Voicemail International "Big Talker" hardware and software must be quoted and ordered directly through Voicemail International.

Availability

Initial shipments of all Voicemail System configurations will begin in Q3/FY84. Delivery of Voicemail International hardware and software is 90 days after receipt of order.

Customer Services

Big Talker hardware and Voicemail System software will be serviced directly by Voicemail International. Big Talker hardware is covered by 90 days parts/30 days parts and labor, warranty and hardware maintenance terms and conditions are exchange labor and shipping. Spare kits are available.

A customer service support hotline will be provided by Voicemail International for Voicemail System software support. Voicemail System operator and user training are provided at additional cost and can be tailored to meet customer needs.

• VMI's Voice Messaging System Ordering Information

See your Digital Sales Rep for ordering information.

• VAX DECmail

Minimum Hardware Required

Any valid VAX/VMS Operating system configuration with

- 2 megabytes memory
 - 20,000 free blocks on the VAX DECmail application volume set
 - DF03 300/1200 baud modem or Bell 212A modem or equivalent
-

• VAX-11/730 Systems

An R80/RL02 configuration is required for VAX-11/730 systems.

NOTE: Depending on workload, VAX DECmail may consume significant VAX/VMS resources. VAX/VMS systems running VAX DECmail should be properly configured to ensure suitable system performance.

Optional Hardware

- Any printer supported by the operating system
 - VT100W, VT52W, VT102W or equivalent video terminals and LA34 or equivalent hard copy terminals
 - Since several of the VAX DECmail editing key sequences depend upon the word processing keyboard, the VT1XX-CE terminal upgrade option can optionally be added to a VT100A terminal to convert it to a VT100W.
 - Keyboard surrounds identifying VAX DECmail specific functions on VT100A and VT52 keyboards
-

Prerequisite Software

- VAX/VMS Operating System
 - DECnet/VAX and Message Router are required to send/receive DECmail messages from one VAX to another.
-

Training Credits

- None
-

Customer Training

DECmail includes a Computer Based Instruction (CBI) package, which is accessed from the main menu. This package provides ten lessons that will teach the user most of the basic functions of VAX DECmail. The CBI function can only be used with VT100 or VT52 type terminals.

A VAX DECmail Instructor course, with user training materials to be administered by the customer instructor, is included with the VAX DECmail software. Optional on-site training for the instructor and the users, is available as well. Arrangements should be made directly with Digital's Education Services Department.

Software Installation

- Customer Installed

Prerequisite Support

- The completion of a Customer Support Plan is required for VAX DECmail. Additionally, a completed DECnet Network Profile is required for the VAX DECmail Multinode Option.

VAX DECmail Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries, documentation, support services, training course.	QC400-AG	QD400-AH QD400-AJ QD400-AM QD400-AV	QE400-AM QE400-AJ QE400-AV
Single-use license-only option, no binaries, no documentation, no support services, no training course.	QC400-DZ	QD400-DZ	QE400-DZ
Update/Unsupported Options Users of VAX DECmail whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC400-HH	QD400-HH QD400-HJ QD400-HM QD400-HV	QE400-HM QE400-HJ QE400-HV
Right to copy for single-use, no binaries, no documentation, no support services.	QC400-HZ	QD400-HZ	QE400-HZ

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Miscellaneous Options			
System Documentation-only kit	QC400-GZ	QD400-GZ	QE400-GZ
User Documentation-only kit	QC401-GZ	QD401-GZ	QE401-GZ
User Documentation-only kit (qty. 25)	QC402-GZ	QD402-GZ	QE402-GZ
User Documentation-only kit (qty. 50)	QC403-GZ	QD403-GZ	QE403-GZ
User Documentation-only kit (qty. 100)	QC404-GZ	QD404-GZ	QE404-GZ
Keyboard Surround Kit for the VT100 (qty. 25)	QC405-GZ	QD405-GZ	QE405-GZ
Keyboard Surround Kit for the VT100 (qty. 50)	QC406-GZ	QD406-GZ	QE406-GZ
Keyboard Surround Kit for the VT100 (qty. 100)	QC407-GZ	QD407-GZ	QE407-GZ
Keyboard Surround Kit for the VT52 (qty. 25)	QC408-GZ	QD408-GZ	QE408-GZ
Keyboard Surround Kit for the VT52 (qty. 50)	QC409-GZ	QD409-GZ	QE409-GZ
Keyboard Surround Kit for the VT52 (qty. 100)	QC410-GZ	QD410-GZ	QE410-GZ

**The VAX-11/782 is a multiprocessor that will be considered a single CPU for binary licensing purposes.

The following key (H, J, M, V, Z) represents the distribution media for the product and must be specified at the end of the Order Number, e.g., QD400-AH = binaries on RL02 Disk Cartridge.

- H = RL02 Disk Cartridge
- J = RA60 Disk Cartridge
- M = 9-track 1600 BPI Magtape (PE)
- V = RK07 Disk Cartridge
- Z = No hardware dependency

• DECTalk Mail Access

Minimum Hardware Required

Any valid VAX/VMS system configuration, except as noted, with:

- A DECTalk DTC01 text-to-speech system connected to the VAX system on a standard RS232 terminal line.
 - Mass storage with a minimum of 5000 blocks during, and a minimum of 500 blocks following installation on the system disk, and 100 blocks plus sufficient space to create a new al.exe image on the disk containing the ALL-IN-1 image.
 - An ALL-IN-1 terminal will be required to run the System Management Menu to set up the user profiles.
 - Voice grade telephone line connected to DECTalk unit and user access to telephones equipped for tone dialing. (See note below)
-
- *VAX-11/730 and VAX-11/725 Systems*
 - 1.
An R80/RL02 configuration is required for VAX-11/730 Systems.
 - 2.
VAX-11/725 systems are not supported.

Telephones

A number of manufacturers now provide telephones equipped with dual tone multi frequency generators for tone dialing. AT&T has registered the trade mark "Touch-Tone" to describe their telephones of this type. Not all push button telephone sets support tone dialing. Some of the less expensive types generate pulses similar to a rotary dial telephone which will not function with this product.

Optional Hardware

- Up to eight DECTalk DTC01 text-to-speech systems may be connected to a VAX/VMS ALL-IN-1 system.

Prerequisite Software

- VAX/VMS Operating System Version 3.5 or later
- ALL-IN-1 Office Menu Version 2.0
- VAX-11 FMS Version 2.0

Optional Software

- None
- Courtesy Installation Service
- This software product will be installed by Digital at no additional charge if you purchase Installation Service for ALL-IN-1 Office Menu and you install both software products simultaneously.

• **DECtalk Mail Access**
Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/ 780,2*,5*

License Options:

A license is required for each CPU.

Single-Use License	QC088-UZ	QD088-UZ	QE088-UZ
VAXcluster License		QD088-QZ	QE088-QZ

Materials and Service Options:

Distribution and Documentation Option	QC088-HG	QD088-HG	QE088-HM
	QC088-HM	QD088-HM	QE088-HY
Software Revision Right-To-Copy Option	QC088-HZ	QD088-HZ	QE088-HZ
Documentation Only Option	QL088-GZ	QL088-GZ	QL088-GZ
User Pocket Guides (Qty: 10)	QLY88-GZ	QLY88-GZ	QLY88-GZ

Software Product Service Agreements:

Basic Service	QC088-8G	QD088-8G	QE088-8M
	QC088-8M	QD088-8M	QD088-8Y
Self-Maintenance Service	QC088-3G	QD088-3G	QE088-3M
	QC088-3M	QD088-3M	QD088-3Y

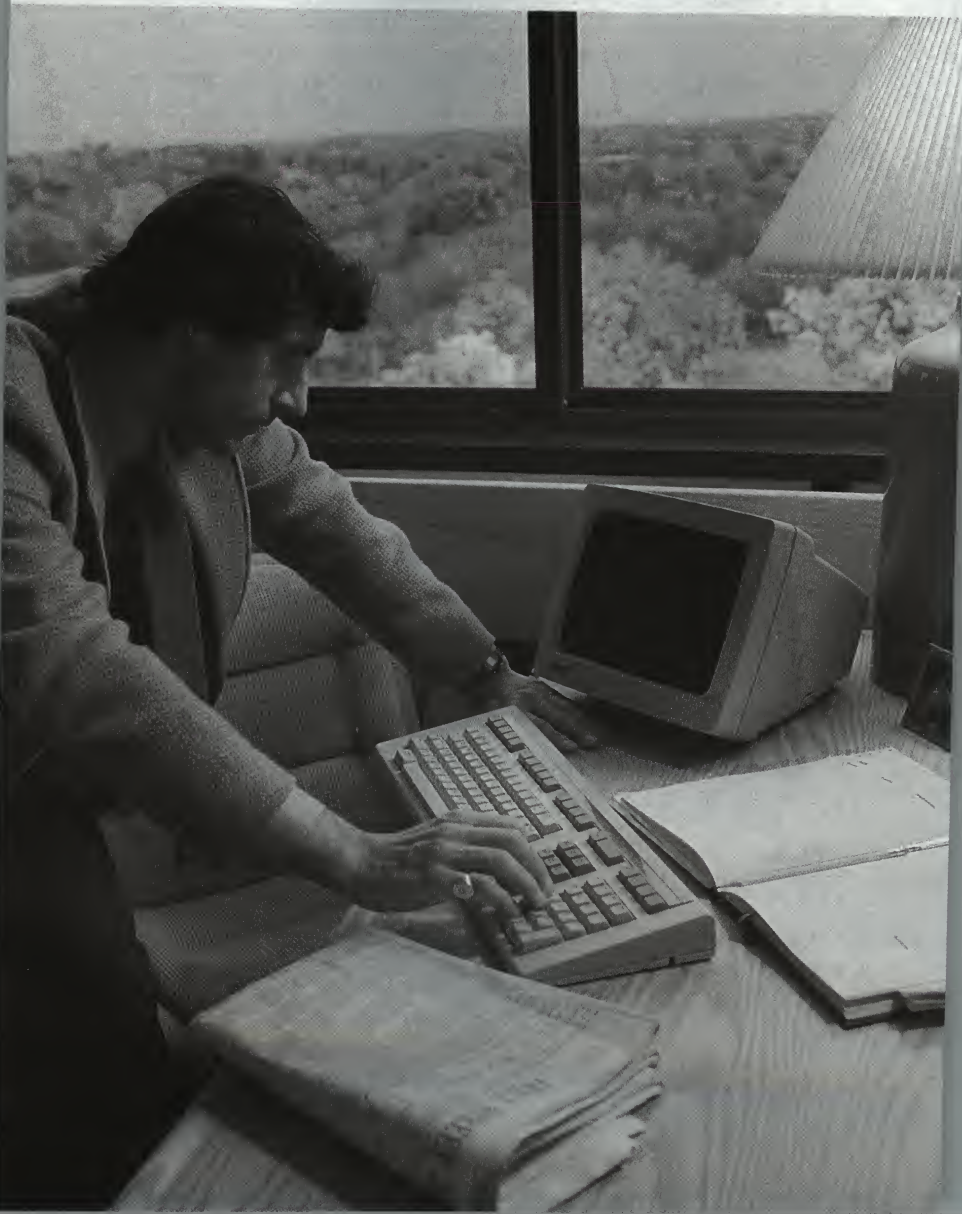
*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g.

G = TU58 DECTape II Cartridge
 Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)
 Z = No hardware dependency

Section 5 • Calculation and Modeling



Engineering mathematical calculation, financial calculation, spreadsheets, and financial modeling products are often important capabilities for office workers. Digital provides several products to meet these needs.

Interactive calculator

As an integral capability within ALL-IN-1, Desk Calculator is a simple, easy-to-use, convenient electronic calculator replacement. Available in both an engineering version and a financial version, Desk Calculator allows a user to interrupt a running application, perform interactive calculations, and return to the application without affecting it. Basic arithmetic calculations are performed using either the keypad or the keyboard of the office workstation or terminal.

Spreadsheet products

Mathematical calculation and information handling, using the spreadsheet format, have become extremely popular because of the widespread availability of spreadsheet programs on many personal computers. These spreadsheet products have various features that appeal to different customers and markets.

Spreadsheet products serve an important need for a wide class of office workers who need to organize, maintain, and reporting of information that can be algorithmically organized or lends itself to a row or column representation. They are easy to learn and easy to use. An important feature of Digital's spreadsheet products is the ability to share the spreadsheet data with other applications. One example is the inclusion of data generated by spreadsheet calculations in a word-processed document, which is then mailed to others via the electronic mail facility.

Digital offers a spreadsheet product for each hardware family. In many cases, a spreadsheet product was designed for a specific piece of hardware, but also runs on other Digital hardware families. Therefore, spreadsheet products can be selected based upon the primary hardware family upon which the product will be used, with secondary product families as a consideration.

DECalc

-
- Recommended for the VAX family
-
- Digital developed and supported
-
- Strong and complete feature set
-

MULTIPLAN

- Recommended for the DECmate family
- Runs on the Professional and Rainbow, as well
- CP/M-based product

SUPERCOMP-TWENTY

- Recommended for the Professional family
- Runs on the VAX and DECSYSTEM families

Lotus 1-2-3

- Recommended for the Rainbow
- CP/M-based product

MAPS/PRO FINANCIAL MODELING

- Recommended for the Professional family
- Runs on the VAX family

If you want specific feature information, refer to the appropriate product specification.

Financial Modeling

Financial modeling is used primarily in financial planning and analysis operations. Historical data is used as the basis for projected financial performance. Because of the algorithmic nature of the available modeling packages, complex interrelationships can be established and what if scenarios can be built. By changing various parameters, the relationship of that parameter to others can be studied.

EMPIRE

There are many financial modeling packages available from third-party vendors. Each has unique features and supporters. EMPIRE, which currently operates on the DECSYSTEM and VAX families, allows what if scenarios to be developed with complex interrelationships. It allows multipass operations, with the next pass based upon the output of the previous pass. It is a good package for sensitivity analyses in the financial planning process.

• ALL-IN-1 desk calculator

With ALL-IN-1, you have a built-in desk calculator at your fingertips. The desk calculator, a part of ALL-IN-1 Desk Management, has all the features you would look for in a separate, desktop calculator, but has the added advantage of being an integrated part of ALL-IN-1.

Integrated with ALL-IN-1

You can use the calculator whenever you're using the ALL-IN-1 system, whether you're preparing a document, answering your mail, or using any of the extensive features of ALL-IN-1's. You can even insert the results of any calculation into your document or mail message, without retyping the results. And the desk calculator is available when you need it, even when you're performing another task.

Full desk calculator capabilities

The desk calculator provides the standard arithmetic functions (add, subtract, multiply, and divide) plus decimal control, square roots, rounding, exponentiation, full trigonometric functions, and a formula mode. The ALL-IN-1 desk calculator replaces a separate, desktop calculator with a top-of-the-line model within your system.

Keyboard or keypad data entry

With the desk calculator, you can use either the keyboard or the keypad, whichever you're most comfortable with, to enter numbers and operations. If you're familiar with hand-held calculators, you'll probably prefer the keypad. If you're familiar with typewriters, you'll probably prefer the keyboard. The desk calculator adjusts to the way you work.

• DECalc

DECalc, a powerful financial planning tool, is the electronic equivalent of an accountant's spreadsheet calculator. DECalc lets you create, edit, and manipulate models that are the basis for your financial plans and budgets. It's self-teaching and requires little previous computer experience.

DECalc's screen-oriented spreadsheet gives you the tool you need to monitor the impact of changes—or potential changes—and to create financial reports. DECalc runs efficiently on Digital's VAX/VMS system.

Mathematical functions

DECalc supports arithmetic functions (addition, subtraction, multiplication, division, and exponentiation) and various statistical and trigonometric functions. These mathematical capabilities eliminate the need for manual calculations.

Model capability

You can construct models of up to 63 columns and 254 rows. So, by using DECalc, you can model complex functions and interrelationships.

A1 *MONTH: JULY*													
20													
AL7													
1	A	B	C	D	E	F	G	H	I	J	K	L	M
2	MONTH: JULY												
3	W/E: 7/1/83												
4	EMPLOYEE NAME	S	M	T	W	T	F	S	TOTL	RATE	TOTAL	TOTAL	NET
5									TIME		WAGES	WHOLD	AMT
6	=====												
7	NANCY		2	2	2	2	2	10	7.70	77.00	23.10	53.90	
8	PATRICK	8		3	3	3		8	25	5.50	137.50	15.50	122.00
9	MICHAEL	8		3	3	3		8	25	5.50	137.50	15.50	122.00
10	SARAH	4					2	4	10	3.00	30.00	0.00	30.00
11	JULIE	4					2	4	10	3.00	30.00	0.00	30.00
12													
13		24	2	8	8	8	6	24	80		412.00	54.10	357.90
14	=====												
15	=====												
16	MONTH: JULY												
17	W/E: 7/8/83												
18													
19	EMPLOYEE NAME	S	M	T	W	T	F	S	TOTL	RATE	TOTAL	TOTAL	NET
20									TIME		WAGES	WHOLD	AMT

Variable expression evaluation

You can specify that expressions be evaluated in standard algebraic order or strictly from left to right; you can also modify the order of evaluation with parentheses. This flexibility increases your control over your model.

Privacy protection

With one keystroke, you can turn off the screen image, without affecting the contents of the grid that was displayed. In addition, grids can be stored in an encrypted form so that not even privileged users can see them. This means you can protect sensitive information. You can make sure that information is released only when appropriate.

Help key

You can quickly and easily get assistance in how to use DECalc, either for your current activity or for a topic you specify. With help available to you, DECalc is easy to use, whether you're new to the system or experienced with it.

Tabular data entry and automatic summation

You can enter numbers in successive grids and automatically find the sum to the numbers. This feature saves time and reduces your chance of error by minimizing keystrokes.

Bar graph generation

DECalc can display your data in the form of bar graphs, a format often useful for highlighting information. By seeing comparative relationships, you can interpret the data more quickly and easily.

• MULTIPLAN

MULTIPLAN is a powerful financial planning tool, also known as a spreadsheet calculator, for businesses of all sizes. It helps you generate financial plans and budgets, whether they're for a multimillion-dollar operation or for your family business.

MULTIPLAN provides a screen-oriented worksheet that lets you construct a model within the confines of the available system memory. It is easy to use and learn, adapts to a wide range of planning and reporting requirements, and offers 132 columns for displaying a full 12 months of data along with totals and titles.

Written by Microsoft Corporation, MULTIPLAN runs under the CP/M operating system.

Command line, prompts and submenus, and help function

With lists of options, reminders, and more information, MULTIPLAN is very easy to use. A list of commands (instructions) available to you is displayed on your terminal. MULTIPLAN's prompts and submenus guide you through data input. And if you need more help, you can get information on MULTIPLAN's features or on the uses of any commands quickly.

Model capability

Using MULTIPLAN, you construct models of up to 255 rows and 63 columns; each column has a maximum width of 32 characters. With the ability to handle complex models, MULTIPLAN gives you the flexibility you need to solve problems and to perform market sensitivity analysis.

Linking of separate worksheets

You can connect several worksheets in the same model. This increases your capabilities because there are no limits on the size of your matrix.

Notification of circular referencing

MULTIPLAN automatically lets you know what calculations are dependent on others. For example, it tells you that Row 1 depends on Row 2, and Row 2 also depends on Row 1. This feature increases your awareness by helping you clarify and monitor the relationships within your model. It makes it easy for you to understand and correctly configure your model.

1	2	3	4	5
INCOME 1982	ESTIMATED	ESTIMATED	ACTUAL	ACTUAL
SALES REVENUES	\$4,212,000.00		\$4,088,371.90	
COST OF GOODS SOLD	\$2,808,000.00		\$2,714,836.75	
GROSS PROFIT		\$1,404,000.00		\$1,373,535.15
OPERATING EXPENSES	\$936,000.00		\$923,693.58	
DEPRECIATION	\$116,000.00		\$115,264.84	
OPERATING PROFIT		\$1,052,000.00		\$1,038,958.42
INTEREST EXPENSE	\$52,000.00	\$352,000.00		\$334,576.73
PROFIT BEFORE TAX		\$300,000.00	\$53,647.74	
INCOME TAX EXPENSE	\$150,000.00		\$143,582.37	\$280,928.99
NET INCOME		\$150,000.00		\$137,346.62

COMMAND: **FILE** Blank Copy Delete Edit Format Goto Help Insert Lock Move
 Name Options Print Quit Sort Transfer Value Window Xternal
 Select option or type command letter
 R17C5 RC-31C-RC-21C-11 87% Free Multiplan: b:income 1982

Format capability

With MULTIPLAN, you can set a format (including width; right, left, or center justification; display \$; and rounding) for the entire spreadsheet or for an individual cell. Because you have control over the form of presentation of your information, you can choose the format that will best highlight important points.

Mathematical functions

MULTIPLAN performs all standard arithmetic calculations along with Boolean algebra and net present value calculations. These mathematical capabilities eliminate the need for manual calculations.

Control of autorecalculation

You choose whether to recalculate the spreadsheet automatically, whenever a change impacts data, or manually with one keystroke. The option is yours. You can have a model that always reflects the latest changes, or you can reduce processing time if you are making changes.

Independent windows

You can subdivide the worksheet into a number of windows that operate independently of each other. You then can manipulate some portions of the matrix while keeping other portions constant. This helps you make faster and better decisions.

Locking of cells

With MULTIPLAN, data can be protected against inadvertent modifications. This ensures that critical data is secure.

• Supercomp-Twenty

Supercomp-Twenty, a powerful spreadsheet calculation program, features a large worksheet capacity for sophisticated analysis and advanced modeling techniques. It is comparable to a financial planning language. Developed by Access Technology, Inc., to run on the Professional 350 personal computers, Supercomp-Twenty permits you to enter data, formulae, and labels directly onto the worksheet display.

An extra-large (1,000-by-1,000) worksheet handles your large, complicated projects, and can format columns from one character up to 126 characters each. For your "what if" questions, a recalculation feature lets you change the contents of one or more spreadsheet cells, so you can see the effects of any changes throughout the worksheet. Supercomp-Twenty automatically makes a backup of your original when you change a row or column, so your data is secure.

You can create labels that are up to 200-characters long, and right- or left-justify them for the professional look. Outline help gives you instant access to tutorials and instruction.

If you need enhanced spreadsheet capabilities combined with a potent modeling language, Supercomp-Twenty is an ideal program package.

• Lotus 1-2-3

Integrated Spreadsheet, Information Management, and Graphics

Lotus 1-2-3 combines the power of three programs—a spreadsheet program for "what if" analyses, database commands to organize and select the information you want, and a graphics program for visual representation of your data. 1-2-3 is so fast you can call up information and graph the results in a matter of seconds. 1-2-3 is ideal for business people who need a powerful analysis tool, without spending a lot of time learning how to use it.

The HELP key provides on-screen instruction for any part of the program. The commands, which are free from computer jargon, are the same throughout the program, saving you the frustration of learning commands from three different sources.

1-2-3 is a 16-bit application program that runs on the Rainbow personal computer under the MS-DOS operating system. 1-2-3 takes advantage of many of Rainbow's special function keys. Since Rainbow's numeric keypad is separate from the arrow keys for cursor movement you can enter numbers easily. So you'll be able to do your spreadsheet work more efficiently.

• MAPS/Pro Financial Modeling

With MAPS/Pro Financial Modeling, a financial modeling and reporting tool, you can develop and run operational, functional models. It features a menu-driven user interface and extensive online help.

MAPS/Pro Financial Modeling can produce up to 40 tabular reports per model. Extensive report formatting options make it possible for you to generate presentation-quality reports. MAPS/Pro also features a variety of "what if" capabilities, including Target Seeking and Sensitivity Analysis, for advanced data analysis. A spreadsheet-like visual editor allows for easy entry and modification of financial information.

MAPS/Pro Financial Modeling can exchange models and data with a VAX or PDP-11 running compatible MAPS/Pro's integrated capabilities include an interactive command language and editor, a financial database subsystem, a procedural modeling language, tabular report generator, and a financial function library.

• EMPIRE

More and more, you've probably found that ever-increasing complexities in the decision-making process demand better, more effective planning and analysis tools, ones that can deal with the "real world." Intangibles like economic uncertainty, material and resource shortages, labor problems, regulation changes, and competition have all made careful planning for and consideration of alternative planning more important than ever before.

So Digital offers you EMPIRE, a cost-effective, easy-to-use tool to help solve "what if" problems. Developed by Applied Data Research, Inc., EMPIRE uses the ALL-IN-1 menu system to put one of the most powerful decision supported tools at your fingertips.

Simple modeling language

You're not restricted to predefined logic for your calculations. Instead, you define a business situation with a simple modeling language that includes descriptive names for model elements, a simple algebraic format for computations, a simultaneous equation facility, and grammar correction. You don't have to be a programmer to use EMPIRE's powerful modeling capabilities, because the language is easily learned, which saves you time and money.

Function library

You don't have to redefine commonly used formulas like depreciation, compounding, payback, tax credits, exponentials, and trigonometric functions every time you use them. These and many other algorithms are stored in a built-in financial, statistical, and mathematical function library.

This puts timely information at your disposal for better and more effective business control.

Graphics

EMPIRE's interactive graphics facility helps you display your charts, graphs, and other data from the model. Line or bar graphs, plotting, and automatic scaling are all included.

Interactive Analysis

Sensitivity, "what if," impact, and target value analysis capabilities allow you to test assumptions and evaluate alternatives, without your having to modify the original model logic or generate unnecessary reports. You save considerable time as well as gain better insight into the problem.

Monte Carlo Simulation

In many modeling situations, you have to consider "real world" uncertainty. Monte Carlo risk analysis lets you identify all elements, specify ranges of values, and select key items for observations—all interactively.

This information is then automatically integrated into model logic execution to create a composite profile. You can then store the data or display them as tables or graphs.

Calculation and Modeling

Product Specifications and Ordering Information

EMPIRE	1-128
MAPS/Pro	1-129
Lotus 1-2-3	1-130
Supercomp-Twenty	1-131
MULTIPLAN-86	1-133
MULTIPLAN/DECmate II	1-134
VAX DECcalc	1-135

• EMPIRE

Minimum Hardware Required

Any valid VAX-11/730, VAX-11/750, or VAX-11/780 system configuration with

- Minimum of 100 KB of memory for EMPIRE
- Minimum of 15,000 blocks of disk storage for EMPIRE

Optional Hardware

- Digital's GIGI VK100-AA, Tektronix 4010 and 4020 series, and Hewlett-Packard 7221 plotters for true graphic output

Prerequisite Software

- VAX/VMS, Version 3.2
- VAX FORTRAN, Version 3.1

Optional Software

- None

Training

- None

Installation

- Customer Installed

Support Category

- Customer Supported

Warranty

- None

This software is provided "AS IS" without any warranty of any kind, either express or implied.

• **EMPIRE**

Ordering Information

Empire is available only on 9-track 1600 BPI Magtape (PE) distribution media.

QA349-CM—	Single-use license, binaries, documentation, no support services.
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Additional Copies of Documentation:

AA-V343A-TE—	Empire User Reference Manual
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AA-V345A-TE—	Empire Installation Guide
--------------	---------------------------

AA-V348A-TE—	Empire Update Notes, V3B
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AA-V346A-TE—	Empire VAX/VMS Update Notes Rev. 02/03
--------------	--

AV-W791A-TE—	Empire Release Notes, V3B-R03
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AA-W790A-TE—	Empire Tutorial
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• **MAPS/Pro Financial Modeling**

Minimum Hardware Required

Any valid Professional 350 system configuration

Optional Hardware

One of the following printers:

- LA50, LA100, LQP02

Prerequisite Software

- P/OS Hard Disk Operating System, Version 1.1

Optional Software

- None

Software Protection

- This software product contains measures that bond the product to the specific CPU upon which it is first installed. This bonding inhibits the transferring of the software to any other CPU, and inhibits the installation of the software on any other CPU.

Training

- None

Software Installation

- Customer Installed
-

Support Category

- Customer Supported
-

Additional Services

- Training, support and maintenance is available from Ross Systems, Inc. 1860 Embarcadero, Palo Alto, CA 94303
-

DCS Classification

Digital Tested

This software product has been tested on the minimum hardware and prerequisite software listed above.

**• MAPS/Pro Financial Modeling
Ordering Information**

MAPS/Pro Financial Modeling is distributed on RX50 floppy diskette distribution media.

QA431-C3—	Single-use license, binaries, documentation, no support services (Media: 3).
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• Lotus 1-2-3

**Lotus 1-2-3
Specifications**

Minimum Hardware Required:

Any valid Rainbow 100 or Rainbow 100+ system configuration with the following:

- PC1K1-AA Country Kit with Keyboard (USA/CANADA)
 - PC1XX-AB 192KB Random Access Memory Option (256 KB minimum required)
-

Optional Hardware

- PC1XX-BA Video Subsystem (Graphic Option)
 - VR241 Color Monitor
 - RX50-YA Dual-drive, Mini-floppy Disk Expansion Unit with Cables
 - LA50, or LA100 Dot-matrix printer
 - HP7470A Pen Plotter
-

Optional Software

- None
-

Training

- None
-

Installation

- Customer Installed
-

• Lotus 1-2-3

Ordering Information

Lotus 1-2-3 is available only on RX50 floppy diskette distribution media.

QA528-C3—	Single-use license, binaries, documentation, no support services.
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• Supercomp-Twenty

Minimum Hardware Required

Professional 325 or 350 with 256K of memory

Supercomp-Twenty requires 409 blocks of disk space and an additional 70 blocks is needed for the demonstration files.

Optional Hardware

- LA50 or LQP02 printers
-

Prerequisite Software

- P/OS Hard Disk Operating System, Version 1.5 or P/OS Diskette Operating System, Version 1.5.
-

Optional Software

- None

Training

- None

Installation

- Customer Installed

Support Category

- Customer Supported

DCS Classification

Digital Service-Approved

- **Supercomp-Twenty
Ordering Information**

Supercomp-Twenty is available only on RX50 Double Density diskette distribution media.

QA476-C3—	Single-use license, binaries, documentation, no support services.
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Additional Copies of Documentation

AA-W923A-TH—	How to Use Supercomp-Twenty
AA-W924A-TH—	Supercomp-Twenty Handbook
AA-W925A-TH—	Supercomp-Twenty Installation/Release Notes
AA-W926A-TH—	Supercomp-Twenty Pocket Guide
AA-X609A-TH—	Modeling and Supercomp-Twenty

• MULTIPLAN-86 For the PC100 (Rainbow)

Minimum Hardware Required

PC-100 Personal Computer consisting of:

- PC100A CPU and dual drive floppy diskette
- VR201-A Monitor
- PC1K1-AA Country Kit with Keyboard

MULTIPLAN requires 102 Kbytes of disk storage and 64 Kbytes of memory.

Optional Hardware

- DEC LA34, LA50, LA100, LA120, LQP02, LA12, PC/XX-AA 64 random access memory, PC/XX-AB 192K random access memory

Prerequisite Software

- CP/M-86/80, Version 1.0.4 (1.1) Operating System

Training

- None

Installation

- Customer Installed

• MULTIPLAN-86

Ordering Information

MULTIPLAN-86 is available only on RX50 floppy diskette distribution media.

QA063-C3	Single-use license, binaries, documentation, no support services.
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Additional Copies of Documentation

AA-N587A-TV	MULTIPLAN-86 Users Guide
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AA-P645A-TV	MULTIPLAN-86 Reference Manual
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• MULTIPLAN For DECmate II

Minimum Hardware Required

DECmate II Personal Computer including

-
- PC2K1-A country kit
 - VR201-A black and white monitor
 - PC278-A system unit with 6120 Single Board Computer and dual RX50 drive
 - PC27X-AA Z80 Auxiliary Processing Unit including CP/M Operating System
-

MULTIPLAN requires 106 Kbytes of disk storage and 64 Kbytes of minimum memory.

Optional Hardware

The software supports the use of the RX50-XA dual floppy drive and the following printers:

-
- LA40 100cps Dot Matrix
 - LA100 240cps Dot Matrix
 - LQP02 32cps Letter Quality Printer
-

Prerequisite Software

-
- DECmate II CP/M™ 2.2 Version 1.0 Operating System supplied with the PC27X-AA Z80 option card
-

Training

-
- None
-

Installation

• **MULTIPLAN for DECmate II**
Ordering Information

MULTIPLAN for DECmate II is available only on RX50 diskette distribution.

QA064-C3—	Single-use license, binaries, documentation, no support services.
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Additional Copies of Documentation

AV-P233A-TV—	MULTIPLAN Reference Card for DECmate II
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AV-P234A-TV—	MULTIPLAN Registration Card for DECmate II
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AA-P232A-TV—	MULTIPLAN Reference Manual for DECmate II
--------------	---

AV-P596A-TV—	MULTIPLAN Getting Started for DECmate II
--------------	--

AA-R247A-TV—	MULTIPLAN Tutorial for DECmate II
--------------	-----------------------------------

• **VAX DECalc**

Minimum Hardware Required

Any valid VAX/VMS system configuration with one of the following terminals:

- VT100 (with or without Advanced Video Option)
 - VT125
 - VT101/102/105/131
-

A minimum line speed of 1200 baud is recommended for performance.

Optional Hardware

- None
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

Support Category

- Digital Supported

Software Installation

- Customer Installed

- **VAX DECalc
Ordering Information**

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC310-UZ	QD310-UZ	QE310-UZ
VAXcluster License		QD310-QZ	QE310-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC310-HG	QD310-HG	QE310-HY
Software Revision Right-to-Copy Option	QC310-HZ	QD310-HZ	QE310-HZ
Documentation Only Option	QC310-GZ	QD310-GZ	QE310-GZ
Installation Service Option	QC310-IG	QD310-IG	QE310-IY
Software Product Service Agreements:			
DECsupport Service	QC310-9G	QD310-9G	QE310-9Y
Basic Service	QC310-8G	QD310-8G	QE310-8Y
Self-Maintenance Service	QC310-3G	QD310-3G	QE310-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC310-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

Section 6 • Time and Resource Management



A terminal or workstation supporting the ALL-IN-1 office menu, in the office of the professional or secretary, is a convenient and powerful tool managing time and resources. Six abilities are included in the ALL-IN-1 office menu:

- Meetings
- Appointments
- Reminders
- Action Items
- To-Do Lists
- Telephone Directory

Not having to use paper to accomplish these six functions is in itself extremely useful. Appointments, reminders and action item lists can be generated easily, updated and displayed. Changes are easily made using a simple editor.

The time and resource management functions are fully integrated with the ALL-IN-1 Office Menu and supporting software, making them easy to use and easy to remember.

However, the fact that other ALL-IN-1 functions can be used in conjunction with ALL-IN-1 time and resource management gives them their unique power. Using electronic mail, for example, you can schedule meetings and/or mail action item lists. Although maintained electronically, daily calendars can be printed to carry wherever a terminal is not available.

The most dramatic advantage is in the area of meeting scheduling. Consider the typical scenario of secretaries, professionals, or managers setting up a meeting with other busy individuals by telephone. "Are you available at 2:00 p.m.? Good, I'll check with Charlie and Joan to see if they can make it." After a few more telephone calls: "Well, Joan is not available until 3:00 p.m. Can you make it then? No. OK. How about 4:00 p.m.? I'll get back to you." And so on.

Using calendar management with its meeting scheduling feature that uses electronic mail, a meeting is requested of all participants within specified time periods. Without the typical telephone tag of the former scenario, the meeting can be scheduled, within seconds, at times convenient to all.

Another important feature of ALL-IN-1 time and resource management is its flexibility. Everyone wants the calendar or operating procedure to be slightly different to fit their personal style, to match the way they work. With the ALL-IN-1 Flow Control feature, it is easy to do and does not require a systems programmer.

If you have to use the telephone, the ALL-IN-1 telephone directory can give you the phone number you need in seconds from either your personal phone directory, the ALL-IN-1 user's directory, or even your corporate phone directory.

• ALL-IN-1 Time Management

The ALL-IN-1 time management system is an extremely easy-to-use tool to help you manage your personal time more effectively. It helps you maintain your personal calendar for workday activities, schedule your own appointments, arrange meetings with other system users, and maintain your own reminders, action items, and to-do lists.

The calendar management system maintains all records of these activities in special files that are accessible only to others to whom you have given access. Two levels of access, read and read/modify, are available. You are allowed maximum flexibility in determining how you are going to handle access to your calendar while not having to worry about unauthorized readers seeing personal records.

These advantages, combined with outstanding ease of use, make the ALL-IN-1 calendar management system the best solution to your time management needs.

Appointment Scheduling

Since you can schedule an appointment in any time slot on the day you choose, your productivity is improved because you're controlling your time better. You know how much time has to be allocated for your own tasks and appointments, and you have the flexibility to arrange it accordingly.

Meeting Scheduling

You can schedule meetings with other calendar management system users. You stipulate acceptable dates to meet, and the system automatically searches the participants' calendars for a mutually available time slot. An electronic mail message is automatically sent out to the meeting participants to confirm attendance, and the time slot is tentatively reserved on your calendar. You can save significant amounts of time by eliminating the traditional game of telephone tag.

Confirming Attendance

Each participant confirms attendance by responding "yes" or "no." If the participant's response is "yes," the meeting is automatically scheduled on his calendar. In either case the invitee's response is automatically sent back to you with attached comments, if any. Your time is too valuable to be wasted; and you can save it by knowing beforehand who is available to attend your meetings. As a meeting participant, you retain control of your time. You decide whether or not to confirm a meeting request.

Checking Confirmations

As the originator of a meeting, you can check the confirmations of other participants. You retain control of your meeting and your time.

Changing a Meeting

As the originator of the meeting, the calendar system allows you to easily send additional information to meeting invitees, reschedule the meeting, or even modify the list of invited attendees. You retain control of your meeting and your time.

Canceling a Meeting

You can cancel a meeting you've called, and the calendar management system automatically notifies the other participants. This too is a big time-saver, because the time-consuming task of contacting meeting participants is handled for you.

• **ALL-IN-1 Reminders, Action Items, and To-Do Lists**

An important component of the ALL-IN-1 time management system is the ability to manage reminders, action items, and to-do lists. These “tickler” systems are ways to remind yourself of tasks you have to do today or in the future and the priorities that these tasks have. It’s a substantial resource to help you manage your time more effectively.

The ALL-IN-1 time management system gives you three tickler capabilities. Reminders are activities you schedule for a specific date. The system keeps track of the reminders and alerts you when the date for a specific activity has been reached. Action items are activities scheduled for completion by a specific date. In this case the system keeps track of these items, alerts you to scheduled completion dates, and allows you to “close out” these items as they become completed. To-do lists are activities scheduled for completion in any order and on any day. The time management system provides an organized way of arranging and displaying these activities.

Each of these tickler capabilities provides you with maximum flexibility in managing your activities. And, because the tickler functions are integrated with the appointment and meeting scheduling capabilities, you have a complete time management system that helps you manage your entire work schedule more effectively.

• ALL-IN-1 Phone Directory

The ALL-IN-1 phone directory is your personal and corporate electronic telephone book. With it, you can locate a person's phone number and such other information as address, electronic mail address, or computer node in a much shorter time than it would take you using a paper directory or telephone book.

The ALL-IN-1 phone directory has three divisions: ALL-IN-1 users, corporate personnel, and personal entries.

You use the ALL-IN-1 directory to locate phone numbers and other information about ALL-IN-1 users. You specify a person's name, department, or account name; the system displays the appropriate data.

The corporate phone directory works in much the same way as a regular directory. You enter a name and receive the appropriate phone number, address, and computer node.

If you select your personal phone directory on the menu, you can look up numbers and other data that you've entered for your convenience. With the personal phone directory, you can add comments or other useful information, such as a nickname or title.

Time & Resource Management

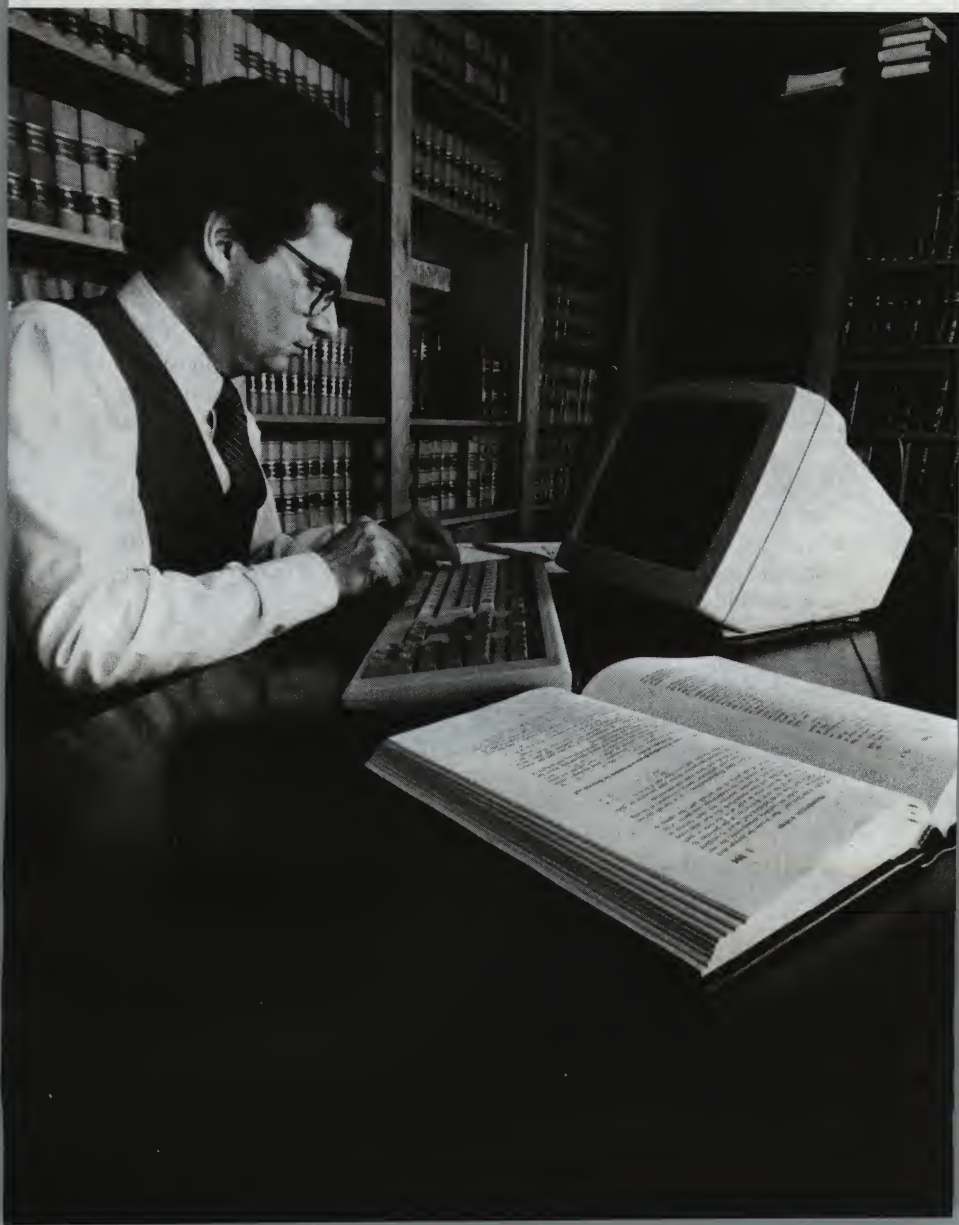
Product Specifications and Ordering Information

Calendar Management.....1-145

• **Calendar Management**

See Chapter 1, Section 1, “The User Interface” for ordering information.

Section 7 • Filing and Retrieval



File systems are the actual tools that provide each user with the information storage and retrieval they require. Under ALL-IN-1, the electronic filing systems are very much like the traditional manual paper systems, with named file cabinets, named folders within the cabinets, and named documents within the folders. But, now, information is handled electronically within the system.

The VAX Information Architecture, with its many software elements, organizes, maintains, stores, retrieves, and manipulates data efficiently. But, its operation is completely invisible (as it should be) to the ALL-IN-1 user. Details of the VAX Information Architecture are included in the Information Management chapter of this handbook.

The important thing to know is that the VAX Information Architecture handles the complex business of assigning file names, numbers, and physical areas. Because the filing systems provide an interface that works the way you do, data is available from cross-files, and under several different categories, without misfiles. If you use the DECmate word processing workstation, the document diskettes themselves provide the file management functions. DECmate also can transfer files to an ALL-IN-1 system and maintain them electronically on that system.

Digital's set of compatible data-handling products help ALL-IN-1 users effectively manage their total information resources. Your word processing files, application programs, electronic mail messages, memoranda, reports, graphics, spreadsheet data and anything you can create can easily and quickly be stored and retrieved.

Personal filing

Individuals using ALL-IN-1 or floppy-disk-based personal computers have to file and retrieve information that they personally own that is, information they have generated or that has been sent to them. The user must have control over the storing and retrieval of that information. The ALL-IN-1 filing system gives ALL-IN-1 users this capability. From an office workstation or terminal, when properly logged into a user account, information can be created and stored, retrieved and viewed or printed, sent to another user via electronic mail, and manipulated (appended to other information, separated into segments that are then filed separately, edited, and removed from the filing system, and so on).

Taking advantage of the VAX Information Architecture, the ALL-IN-1 filing system is reliable, secure, easy to use, flexible, and efficient. Its Key features include the following.

-
- Anything you create, you can file.
 - Files can be retrieved based on the name you gave it or on a keyboard search.
 - The named folder concept makes filing easy.
 - Nonrestrictive file naming and identification allows a wide range in naming style.
 - A directory of all files in a particular user's area can be viewed or printed completely or selectively at any time.
 - No one can access your files unless you give them that privilege or they are properly logged into your account.
-

The personal computer floppy-disk-based filing system has many of the features of a large system. Security is enforced by providing access to the floppy disk itself. A named-file implementation makes information retrieval easy. You don't have to remember the number of the file and certainly don't have to know where on the disk it is stored. The index may be viewed or printed and provides important information about the information on the disk; such as size of the file, when it was created, and the last time it was updated, among other information to enhance the information-management process.

Departmental filing

Besides personal filing, the ALL-IN-1 system provides essential capabilities for departmental or organizational filing. There are situations in which shared information is key to the success of the organization. Departments may wish to establish a library area, where important information is stored, maintained and updated for use by the entire department. This ensures that everyone in the department will make decisions using the same information. The information may come from individuals within the department or from external sources. The important features of this type of storage design are controlled access, data integrity, and access by many individuals.

Archival storage

Archival storage typically is addressed by the data processing department and usually is not the concern of an office system user. The user need only know that information no longer maintained in the active information management system is available in some form. Printing this information and storing it in file cabinets reverts back to the age-old problem of having too many physical file cabinets. Electronic archiving is a much better solution to the problem.

For ALL-IN-1 users, the VMS operating system can store information on magnetic tape. Traditionally used to back up (fail-safe) disk storage systems in case of failure or inadvertent deletion of information, tapes are also used in many installations to maintain, for future reference, periodic snapshots of the information stored on the system. DECmate users can set up an archival information storage system using floppy disks.

Many manufacturers of microfilm output devices interface their products to VAX systems. As a result, there is a wide range of third-party offerings that can be connected easily to an ALL-IN-1 system for archival of information storage.

• The ALL-IN-1 File Cabinet

Information filing and retrieval is a time-consuming and expensive chore for any organization. Studies show that for the average office, it costs about \$23,000 to set up a single conventional file cabinet, \$5,600 to maintain it for a year, and about \$80 to retrieve a misfiled memo or letter. That's a considerable expense, especially when you consider that only 30 percent of stored information is ever accessed during the year.

With the ALL-IN-1 filing cabinet, you can locate the information you need at electronic speeds. Documents and messages are stored and retrieved easily and quickly from a folder system that's similar to the one you use in your conventional paper-filing cabinets. The ALL-IN-1 filing cabinet comes complete with all of the features you expect in an office filing system. With it, you can

- Store a document in one folder, or many folders
- Display an index listing for all documents and messages that you've stored
- Display a listing of documents stored in a particular folder
- Copy documents from one folder to another
- Print and delete documents

You assign the document's name, subject and folder names

When you create a document, you assign it a name of up to 30 characters, and a subject name of up to 60 characters. These names allow for meaningful, precise document description. You spend less time searching through files because you don't have to remember cryptic abbreviations.

Related documents and messages can be grouped together under a folder name you assign. With this feature, you can create folder names that reflect the way you work. It's easy then, to locate and retrieve documents.

Automatic cross-referencing

You can search for a document by entering any one or more pieces of information contained in the document such as subject, author, document name, file folder, type, keyword(s), or phrases (up to five). You don't have to know about how or where the document is stored; whatever information about a particular file is easiest for you to remember is enough to locate your document.

Your documents are easily used by VMS

ALL-IN-1 automatically provides a VMS file name for ALL-IN-1 documents or mail messages. You can move these yourself from the ALL-IN-1 filing cabinet to VMS. This means that every document is available to you if you wish to perform additional VMS functions. You can extract data contained in an ALL-IN-1 report, for example, and copy it into a VMS file for processing by an application program, or you can store the data in a database.

Access VMS files through ALL-IN-1

You can move VMS files or documents into the ALL-IN-1 filing cabinet. To include DATATRIEVE-created graphics in a report generated by your word processor, for instance, and then distribute this report via electronic mail, you can perform these ALL-IN-1 functions on information retrieved from a VMS database or generated by a VMS program or application.

You can easily tailor ALL-IN-1 to include applications that provide access to data or files stored by VMS without having to learn conversions or VMS itself.

Store DECmate documents

If you use a DECmate system, you can transfer WPS documents to the host processor for central storage, or print on the host's lineprinter. In this way many users can access a common document library. You can store lengthy documents on disks available on the host systems, and you can print draft copies on high-speed lineprinters. If your DECmate document is converted to VMS format, you can distribute it by electronic mail, or use it as input to application programs.

Convert ALL-IN-1 documents to DECmate format

If you're a DECmate user, you can convert files, transfer them to DECmate, and print them on a DECmate printer. You then have the advantage of a large central library and ALL-IN-1 power, yet retain your DECmate for processing and printing.

• ALL-IN-1 Archival Backup

Archival backup routines store information on an output medium—either disk or tape—for later recovery. In this way, your files can be used for archiving, which is offline or offsite storage for infrequently accessed documents, to meet legal requirements, or to protect your files against loss by a catastrophe like fire or flood. How often you back up a file depends on the nature of the data. How critical is your information? If it can't be replaced easily, back it up. How volatile is it? If it's changing constantly, back up frequently. The ALL-IN-1 menu system allows you to protect your valuable data without the least trouble and without any programming experience.

Both DECmate and Professional Series computers have easy-to-use menu-driven backup modes that copy diskettes or disk to diskettes.

Backup, is a VAX/VMS utility. Backup can be used to copy files from one disk to another or to magnetic tape for archiving. Backup can also be used to restore files damaged or destroyed.

Section 8 • Movement of Information

1970-1971

The first of the three major sections of the book is devoted to the study of the movement of information. This section is divided into three parts: the first part deals with the movement of information from the source to the user; the second part deals with the movement of information from the user to the source; and the third part deals with the movement of information from the source to the user through the intermediary.



Digital understands that simply having word processing and other office administration tools is not enough to meet the needs of our office customers. They must also be able to simply and easily move information between users and between computer systems, and to merge information obtained from many different sources. For many years Digital has been an industry leader in communications technology. The Digital Network Architecture and the VAX Information Architecture are a complete framework of information management and exchange capabilities that we have used to build flexible office applications. Technical details about these architectures and the elements that compose them are provided in the *Information Management* and *Communications* sections of this handbook.

For the office user, these products provide extremely powerful and flexible tools to meet a wide spectrum of information movement needs. But more important, users can perform these functions using simple menu commands. That's because our various communications capabilities have been integrated tightly into the ALL-IN-1 Office Menu. Thus, what could be a very difficult and complex task becomes a simple matter of menu selections. The underlying technologies that manage and exchange information are obvious to the office system user.

An example illustrates this process. Let's suppose a district sales manager in Chicago needs to put together a monthly report. The outline of the report and most of the text will be entered directly by the manager. However, she also needs to incorporate into her report:

-
- The latest economic forecast data
-
- The latest district sales data stored on a corporate IBM database
-
- Sales expense data for all of her sales managers, which must be retrieved from every remote office.
-
- A summary of a new set of terms and conditions that is maintained in boilerplate form on a production word processing system.
-
- The final step will be to distribute the report to her staff and her regional sales manager, located in Chicago, and to corporate headquarters in New York City.
-
- How are these various tasks accomplished? The sales manager uses simple ALL-IN-1 menu commands. For the system to accomplish these commands, a number of different capabilities are used.
-

STEP	WHAT THE USER SEES	WHAT THE SYSTEM USES IN ADDITION TO ALL-IN-1 (OR WITH ALL-IN-1)
After typing in the initial text for the monthly report on her DECmate, the manager types a single command to log onto the ALL-IN-1 Office Menu.	DECmate Easycom main menu command	Easycom CX communications
The manager types in the name of the document transfer menu containing the monthly report and transfers it to an ALL-IN-1 file cabinet.	DECmate document	DECdx
To incorporate the economic forecast data, the manager accesses the Service, ALL-IN-1 Dow Jones information word processing service via an ALL-IN-1 menu and copies the forecast data into the report.	ALL-IN-1 Office Menu, Dow Jones	VAX Dow Jones Access
The manager next compiles a summary report of expense data, stored on various systems in each of the remote sales offices, and adds that to the report.	ALL-IN-1 Office Menu, DATATRIEVE procedure, and ALL-IN-1 word processing	Distributed DTR CDD DECnet
From the DECmate the manager logs onto a central IBM system and browses through the database to find the necessary sales data file.	ALL-IN-1 Office Menu and IBM host system software	DECnet/SNA Gateway or 3271 PE

The manager locates the data, transfers the file to ALL-IN-1, and merges it into the document.	ALL-IN-1 Office Menu, RJE transfer, ALL-IN-1 word processing	DECnet/SNA Gateway or 2780/3780
STEP	WHAT THE USER SEES	WHAT THE SYSTEM USES IN ADDITION TO ALL-IN-1 (OR WITH ALL-IN-1)
To obtain the boilerplate for Terms and Conditions, the manager next requests a document stored on a Wang/OIS system, which is then merged into the report.	ALL-IN-1 Office Menu, Wang Document Exchange, ALL-IN-1 word processing	External Document Exchanges 3780
The report complete, the manager transfers the document back to the DECmate, and the manager's DECmate...	ALL-IN-1 Office Menu, DECmate menu	DECdx
then transfers it to the corporate staff in N.Y.C. via electronic mail...	ALL-IN-1 Office Menu, ALL-IN-1 Mail ALL-IN-1 Menu	Message Router DECnet 3780

This simple scenario illustrates just one office task made possible by Digital's information exchange products, the Digital Network Architecture, and the ALL-IN-1 Office Menu. Users are freed from having to try to learn many different kinds of communications products. They are also freed from having to know the details of where other users and information are located. For instance, in sending the final report to the corporate staff, the manager simply references them by name, and does not have to worry about their physical address.

A brief summary of some of the capabilities discussed above follows.

Easycom and CX	Let the DECmate user access host ALL-IN-1 Office Menu systems quickly and easily.
DECdx	Let the user transfer documents among DECmates, ALL-IN-1 Office Menu systems, and host systems preserving WPS characteristics.
VAX Dow Jones	Allows access to the Dow Jones Information Access Service from the ALL-IN-1 Office Menu, including the ability to merge Dow Jones information into a word processing document.
External Document Exchange	Lets the user perform two-way conversion of documents. Wang documents can be changed into Digital's word processing format and vice versa.
Message Router	Automatically routes electronic information to any user in the network. Message Router allows messages destined for systems temporarily unavailable to be stored and forwarded when those systems become available.
VAX 3271 Protocol Emulator	Allows ALL-IN-1 terminals to function as 3271 terminals on an IBM host system.
VAX 2780/3780 Protocol Emulator	Provides batch file transfer between an ALL-IN-1 and an IBM system.
DATATRIEVE/CDD	Stores and retrieves information stored on distributed Digital systems, without the user having to know on which node the information is located.
DECnet	Handles the basic communications and network functions, including the ability of any terminal or workstation to function as a terminal on any other computer in the Digital network.

The remainder of this section contains further user-oriented information about each of Digital's information exchange products. For more technical detail, please refer to the sections on Information Management and Office Networks.

• Easycom

Easycom lets you communicate quickly and easily with host systems (both Digital and non-Digital devices) using character transfer (CX) communications from your DECmate II. The repetitive steps for communicating with a host system can be eliminated. Using an Easycom log-on file, your DECmate can access a computer, send electronic mail, use another printer, typeset documents, or do any other job you can do with CX, automatically. Easycom lets you go straight from word processing on your DECmate to using application programs on a host system.

Easycom sets up communications for you automatically

By using a log-on file stored on your DECmate, you can skip all of those repetitive steps needed to connect your DECmate to a host system. A log-on file is a document containing a list of commands. These commands tell the DECmate how to start communications and log onto the host system for you. The log-on file duplicates the commands you would ordinarily type if you wanted to do the same thing manually.

Easycom helps you save valuable time when logging into those systems you frequently access.

Transfers documents automatically

Easycom can set up your Digital host system for AX or DX document exchange communications with your DECmate. If your DECmate is running Easycom, it can be set to AX or DX by the host system to send or receive documents, and then be switched back to character transmission mode.

The entire process of initiating and transferring documents between your DECmate and a host system can be simplified using Easycom. You'll save time and steps using your prestored command files.

Easycom log-on files are easy to create

You can create log-on files for all of your specialized communication needs. To write a log-on file you must learn a few simple things:

- How to write a simple program
- How to use the CX options
- How to log onto the host you are writing the file for
- How to initiate the desired application, document transfer, and so on, on the host
- Or, you can copy log-on files that other users have created, which is as simple as copying a document from disk to disk

You can write log-on files easily that can put you in touch with the information you need when you need it. Once a log-on file has been created by anyone in your group, office, or department, it can be copied easily and used by anyone who needs it.

• VAX CDD Common Data Dictionary

VAX Common Data Dictionary can make the location of information transparent to your users. The VAX Common Data Dictionary stores information about your data, including where it is physically located. This means that when you ask the system for information, it can find your data wherever it is located. This includes data that may be located on other DECnet nodes connected to your system.

VAX Common Data Dictionary (CDD) is the keystone of the VAX Information Architecture. The CDD is essential to the operation of VAX DATATRIEVE, VAX Database Management System, VAX Application Control Management System and VAX Terminal Data Management System. It gives you a single, logical data dictionary for a VAX/VMS system. For more information on VAX CDD's capabilities refer to the *Information Management* section.

Central data storage

In the past, data that was needed on more than one system was kept on one central system and copies were sent to all of the other systems needing that information. Depending on the updating frequency of those files, they would be copied weekly, daily, or even hourly.

VAX Common Data Dictionary lets you keep those files on one system in your network. You don't have to make multiple copies any more, the CDD allows your users to access that information from any system in your office network. Updating information on one system now keeps all of your users up-to-date, eliminating the need to copy files between systems.

Simplified Programming

Applications written to use the VAX Common Data Dictionary, for data access, are simplified. The application doesn't have to keep track of where the data is stored. If the location of the data changes, only the VAX Common Data Dictionary needs to be updated; your office applications can remain the same.

Your programming staff can save time writing their applications, because the VAX Common Data Dictionary keeps a record of the locations of where the data is stored and how it is structured.

• VAX Dow Jones Access

Dow Jones News/Retrieval is a business information service specifically designed for the busy executive. Initially this service allowed non-intelligent terminals or microcomputers to access a wide range of financial business data. But the limitations of these small systems prevented many people from having easy access to this data. VAX Dow Jones Access gives you, your group, your department, or your firm easy access to Dow Jones News/Retrieval through a VAX computer and any Digital office workstation.

Automatic Autocall and Log-in Procedure.

VAX Dow Jones Access will dial a predetermined telephone number to a local packet switching network vendor (Tymnet or Telenet). After the connection has been established, the network will prompt you for log-in information, passwords, and other information. But all you have to do is press the return key in response to each of these questions VAX Dow Jones Access automatically answers them for you.

Enhanced User Interface

You don't have to remember the various codes and symbols needed to access information from the Dow Jones Service—VAX Dow Jones lets you use the alternate keypad of your Digital office workstation instead. This saves you valuable time when searching for important quotes or data.

VAX-11 DOW JONES V1.0
VT100 Alternate Keypad Layout

Select the desired Dow Jones News/Retrieval function by pressing the corresponding VT100 Alternate Keypad Key.

Then type the stock symbol or database request.

Press RETURN to continue

PF1	PF2	PF3	PF4
GOLD	HELP	Record On/Off	
7	DJ HELP	Set Name	
Hist Qt	DJ News	Fr-Text Search	Sports
-Mode-	Wst Jrnl	Exit FTS	Weather
4	5	6	
US Tres	Disc II	Media General	Movies
Money Mkt	Corp Ent	Prs/Fund	Encycl
1	2	3	Enter
Mutual F	Option Quote	Wall ST	Stock Quote
Bonds	-Mode-	Econ Upd	
0			
Disconnect & Exit	Select Exchange		
Disconnect Only	User Mnt		

Digital Equipment Corporation (c)1982

Data retrieval and storage.

VAX Dow Jones can record any or all of the information you receive from the Dow Jones Service. If you are using the ALL-IN-1 Office Menu, that information will be left in your paste buffer so you can add it to a document or mail message. If you don't have an ALL-IN-1 Office Menu system the information will be put into a file on your VAX for future use.

You can save valuable time and trouble by capturing the information as you see it and simply pasting it into a document or mail message.

ALL-IN-1 Office Menu integration

VAX Dow Jones can be easily added as a menu selection to any of the ALL-IN-1 Office Menu System menus so all users can access it. Integrating the VAX Dow Jones package also allows the paste feature to be used to capture data from the Dow Jones service.

Your office can easily have access to the Dow Jones Service through your ALL-IN-1 Office Menu system. You also can transfer easily information retrieved from the service into your documents or mail.

Online Help

Pressing the help key gives you a look at the workstation alternate keypad layout. By pressing the Gold Key and then the help key you can get specific information about the Dow Jones function you currently have selected.

You don't have to keep a users manual close at hand or memorize key strokes. Help is just one key away.

The following services are available from the Dow Jones News/Retrieval service, implemented by using the alternate keypad.

Current quotes

You can request current quote information for:

- Common and preferred stocks and warrants
- Corporate and foreign bonds
- Options
- Mutual funds
- U.S. Treasury issues

Using the office workstation at your desk, you can keep up-to-date with the latest quote information from the stock exchange.

Select exchange

The Select Exchange key allows you to select the following exchanges:

- Composite/Over the counter
- New York
- American
- Pacific
- Midwest

Without leaving your office, you can stay up-to-date with what's happening on each of the exchanges.

Historical Quotes

Historical quotes are available for common and preferred stocks and warrants from each of the exchanges. Composite quotes are available starting with 1982's second quarter. Quarterly summaries begin with 1978, with quarterly and monthly summaries available for 1979 to the present. Daily historical quotes are also retained so that quotes for up to 264 prior trading days will be available.

You can review market trends for the past few days or the past few years. The information is at your fingertips with VAX Dow Jones.

Dow Jones News

The Dow Jones News database gives you news from the pages of the Wall Street Journal, Barron's, and the Dow Jones News Service (the Broadtape), as recent as 90 seconds ago or as far back as 90 days.

You can be kept up-to-the-minute with the latest financial news, or review what happened last month. The information is available at your office workstation.

Weekly economics update

In this five-part database, you can find statistics and analyses of the past week's economic events and a look at the month ahead compiled by the editors of the Dow Jones News/Retrieval service.

You can see how the Dow Jones editors felt about last week's events and how they view the future, giving you another opinion to help you make better decisions.

Wall Street Journal highlights

You can view the headlines and summaries of the major stories in the Wall Street Journal as early as 7 a.m. (Eastern Time) each morning. You have the option to select one section of interest to you or the entire online edition. In addition to the current day's edition you can review the past four editions.

You can keep current with all the latest daily news, as if the Wall Street Journal were delivered to your office daily. You can also use this information to make business decisions from a reliable source.

Disclosure II financial and descriptive data

Disclosure II lets you draw on a wide range of composite corporate data filed with the Securities and Exchange Commission. You will find everything from company profiles, balance sheets, and line of business segment data to the names of the officers, directors, and subsidiaries.

Financial information about all of the firms on the stock exchange is immediately available at your workstation. No need to wait for statements to be sent through the mail.

Corporate earnings estimator

Updated weekly, this feature provides consensus forecasts of earnings per share for 2,400 companies based on estimates provided by 1,000 research analysts at 45 major brokerage firms. For consistency, estimates are converted to primary earnings before extraordinary items.

You can follow and keep up-to-date with how the experts feel about any firm you may be tracking.

Free-text search of Dow Jones news

The Free-Text searchable database contains news stories dating back to June 1979 compiled from the Wall Street Journal, Barron's, and the Dow Jones News Service. This is separate from the regular 90-day news database, which is accessible using company stock symbols and various industry and government agency categories.

The Free-Text search feature lets you search the news database using any words, phrases, dates, or numbers that are contained in the headlines or in text. Specialized search statements can be designed by linking several words or phrases together.

Free-Text search means that you don't have to clutter your files with all those articles you think are important. Instead, you can access those articles easily using VAX Dow Jones—whenever you need them.

Media General Financial Services

Detailed corporate financial information is available using the Media General Financial Services database. With it you can get access to information on 3,200 companies in 170 industries.

Here is another source of specific financial information available to help you make the best informed decisions.

Sports

This information is assembled from the wires of United Press International. It offers current news stories and statistics on professional and top amateur sports. The type of sports information available will vary depending on the season. Statistics are updated every morning, Monday through Friday.

It's an easy way to find out how your favorite team, your boss's team, or even your client's team did last night.

Weather

This feature provides a complete package of weather statistics broken down into three separate sections:

-
- Temperature tables

 - National weather forecast

 - National weather wrap-up

The temperature tables are forecasts by city showing the city name, the high and low temperatures from the previous day, and the predicted current day weather conditions. The national weather forecast is a regional summary of current-day weather conditions for the United States. The National Weather Wrap-up is a regional summary of the previous day's major weather developments.

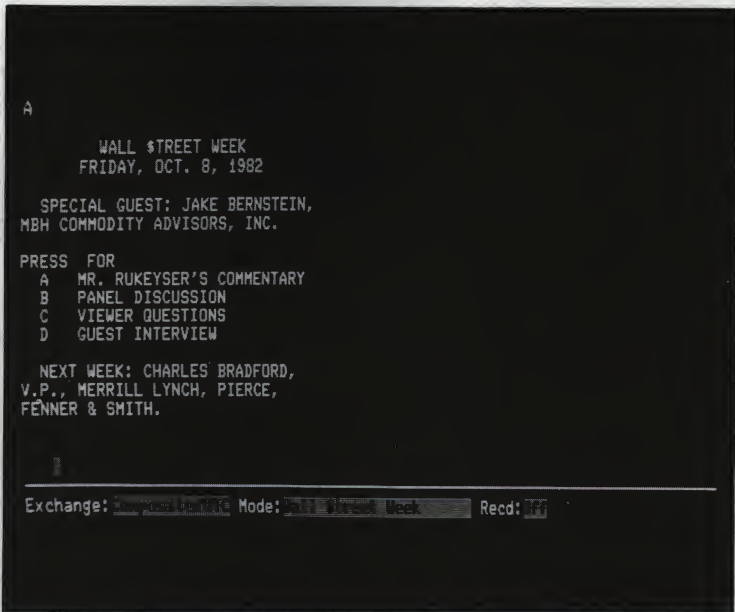
This information is updated twice daily, Monday mornings through Friday afternoons.

If you do a lot of traveling, this feature will help you plan for your trip.

Wall Street Week

In full transcript of the well-known PBS television program, *Wall Street Week*, the text is broken down into four sections so that you can review an entire program or any portion that interests you.

Now if you want to review or save any of the information presented on any of the four most recent *Wall Street Week* shows, you can through VAX Dow Jones.



Cinema movie reviews

These reviews of approximately 50 movies is updated each week. Reviews cover the week's top new releases as well as those currently showing across the nation.

Cinema movie reviews keep you abreast of the major films and how the critics view them.

Academic American Encyclopedia

The entire 20-volume Academic American Encyclopedia is available online on Dow Jones News/Retrieval. The electronic encyclopedia is updated twice a year by Grolier, Inc. and contains more than 28,000 current articles.

You now can have immediate access to an encyclopedia when you need it.

User mode

When new functions are added to Dow Jones News/Retrieval, new features will have to be added to VAX Dow Jones. The User Mode feature allows you to access a new function before it is added to VAX Dow Jones.

You can have immediate access to the new functions of the Dow Jones service as they are added. You don't have to wait for your software to be updated before you can use a new Dow Jones function.

• DECdx

DECdx, a family of software products, resides on your PDP-11, VAX/VMS, or DECSYSTEM-20. With it you can connect your standalone and shared-resource WPS-8 systems to a host system for better system utilization, document exchange, and information and data sharing.

Using DECdx, you transfer documents between DECmates and host systems over a serial communication or telephone line. All of your document print-control characters and special formats are retained during the transfer.

All of the communication done between your WPS-8 and host systems is done using the Digital Standard Document Exchange Protocol (DX), which detects transmission errors and corrects them.

Compatibility

All of your documents transferred by DECdx are stored in DX format, Digital's standard document format.

If you need to take a document from one system and use it on another, you won't lose any information or document characteristics. Your documents are transferred between systems without any changes.

Shared access

With the appropriate privileges, users can share documents.

More than one person can work with a document at the same time. This lets you use your people and system resources more effectively.

Transfer documents

You can transfer documents from your DECmate to your host system, or from your host system to your DECmate. Using the host system as a central storage system means you can access a greater number of documents, from a central location.

You save time by having large or important documents stored on your host system and then using DECdx to get them when you need them. This also allows anyone with the correct privileges to retrieve those documents when they are needed.

Index

A directory of documents stored on your host system in DECdx format can be displayed on your DECmate office workstation. The DECdx index has the same appearance as the document index of your DECmate.

No retraining is needed for your DECmate users to identify documents stored on your host system.

ADD document

Using the ADD function you can add DECmate documents to your DECdx document index.

With simple commands, you can use this product the very first day to create a document directory on your system quickly and easily.

Conversion

Three conversion utilities come with DECdx.

If you are already using the current DX product, an OLD-to-NEW utility is useful. It takes your old files and updates them to the new DX format.

If you have a need to take files in ASCII format, that were created by some other program, application, or editor, you can add those files to your DECdx index using a FILE-to-DOCUMENT utility. Once you have these files in your document directory, you can send them to your DECmate and edit them using the sophisticated WPS editor.

Some applications and editors on the host system require the document they are working with to be stripped of most of the special document format and print features, and to be stored in an ASCII file. Using the DOCUMENT-to-FILE function, you can convert a document from DECdx format to ASCII format.

No matter which conversion function you use, the resulting document or file will be structured to appear as close to original as possible.

The tools have been put in place to help make your job easier. Since not all of the information available from your host system is available in one format, these tools make it easy for you to get the information when you need it.

Print utility

With DECdx you have the choice of printing your documents on the host system printer. Or you can transfer a document to your DECmate and print it on your letter-quality printer.

You can use the speed of your central host system's impact printer for printing large documents, or you can use a letter-quality printer attached to your office workstation—the choice is yours.

Read document

You can read documents stored in your DECdx directory without transferring them to your office workstation.

You can find information stored in your directory without printing, converting, or transferring a document.

Online help

Extensive online help is available to help you when you need it, where you need it.

You don't have to consult a copy of the user's manual each time you use DECdx. If you have a simple question, the system can give you the answer, making your job just that much easier.

• poly-XFR CP/M Communications

poly-XFR CP/M provides flexible, easy-to-use file transfer between a variety of host systems and your personal computer. poly-XFR's terminal-emulation capabilities let you share data, programs, and peripherals with any area of your organization—without spending a lot of time trying.

The CP/M Communications package consists of these parts:

- The poly-TRM terminal emulator is designed for interactive communications and transmission (uploading and downloading) of ASCII text files.
- poly-XFR and poly-HST are paired components that are designed for error-free file transmission and format conversion between your Rainbow and other systems.
- SWITCH lets you operate your Rainbow remotely.

This communications software is especially adapted to take advantage of Rainbow's function keys and display capabilities. poly-XFR CP/M runs under the CP/M-86-80 operating system.

• 3271 Emulation and RJE Access

Our Internet protocols enable Digital systems to be connected with mainframes from IBM, Control Data Corporation, and Sperry Univac and with other processors that use the same protocols. Digital's IBM Internet products support Batch BISYNC, Interactive BISYNC, and SNA (IBM's System Network Architecture) communications. Internet products give you the greatest possible opportunity to match different types of processors to different types of jobs without compromising your overall networking effort.

In a manufacturing environment, for example, Digital systems that maintain local parts inventories can update and request information from a central mainframe database. This is possible via Digital's Interactive BISYNC 3271 or SNA protocol emulators. These same two Internet products also allow programs on Digital and IBM systems to work together interactively to solve applications problems. Development engineers engaged in transaction-oriented processing at test stands can forward data to a mainframe for further analysis and receive final results in return. Data from the shop floor in the same company can be collected by local Digital systems and held for periodic transmission to an IBM mainframe via our Batch BISYNC 2780, 3780, or HASP protocol emulators.

• **External Document Exchange**

If you currently use a Wang OIS system to do your word processing and want to transfer documents to Digital's more powerful ALL-IN-1 Office Menu system, you can with External Document Exchange. External Document Exchange, a special two-way conversion option, converts a file transmitted from your Wang OIS word processing system via 3780 communications into a form compatible with your Digital office system. You can then use any of the many features available on ALL-IN-1 on that document. After you complete your work on the document, you can convert it back to the Wang format. This facility also works in reverse. You can first create your letter, memo, or other document on any of Digital's word processors and then translate it to the Wang OIS format.

ALL-IN-1 interface

External Document Exchange uses standard ALL-IN-1 menus, so the utility is extremely easy to use. Conversely, if you're concerned about ease of use for those in your office using Wang OIS, the interface involves only one menu entry. It's easy to use, and easy to increase your document processing power.

DX file compatibility

Files transferred from the Wang OIS system are converted into Digital's standard DX document format. You can then use such other products as WPS-PLUS (for editing) and DECpage (for high-quality printing).

Enhanced reliability

External Document Exchange has been tested for consistent conversion; any document characteristic transmitted by 3780 is fully converted to eliminate tedious reformatting. A word of caution, however, concerns some document characteristics, such as bold and underline, which are stripped from the document by the Wang system before it's transmitted via 3780 communications. These characteristics, therefore, can't be converted.

Built-in system manager

An ALL-IN-1 system manager form for controlling the interconnect software in both directions is included in External Document Exchange. This makes your system easier to manage.

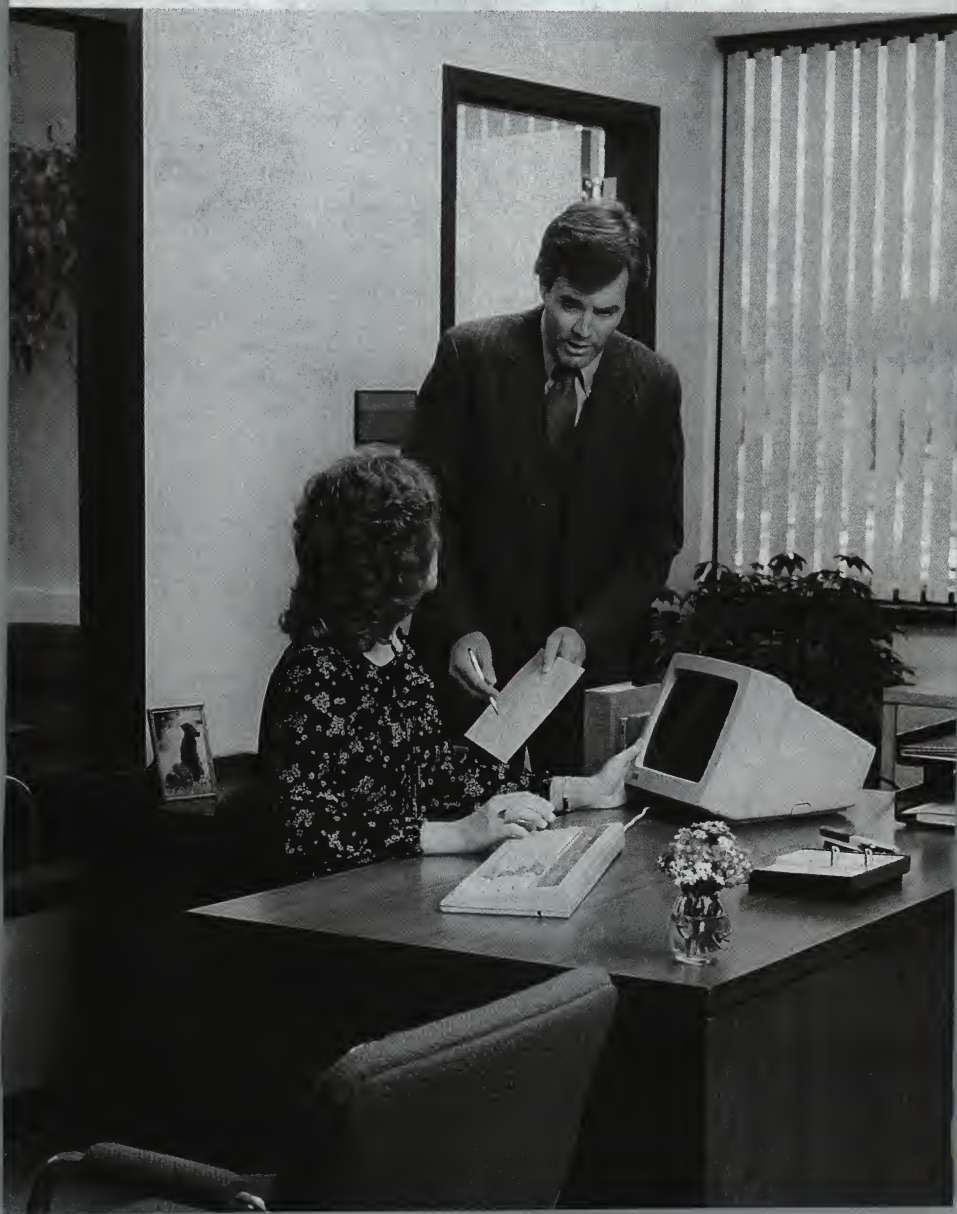
Movement of Information

See Chapter 3 Communications Capabilities for Product Specifications and Ordering Information

the following information is available for the 1990s:

Year	Office Capabilities
1990	1.0
1991	1.0
1992	1.0
1993	1.0
1994	1.0
1995	1.0
1996	1.0
1997	1.0
1998	1.0
1999	1.0
2000	1.0
2001	1.0
2002	1.0
2003	1.0
2004	1.0
2005	1.0
2006	1.0
2007	1.0
2008	1.0
2009	1.0
2010	1.0
2011	1.0
2012	1.0
2013	1.0
2014	1.0
2015	1.0
2016	1.0
2017	1.0
2018	1.0
2019	1.0
2020	1.0

Chapter 2 • Information Management



In an office automation environment, end users have a single workstation, either terminal or personal computer, on their desk. This workstation is the single window into the electronic systems that help them do their jobs more effectively.

As you go through a typical day at work, you'll use many ALL-IN-1 office applications—mail, word processing, business graphics, office administration, time management, and spreadsheets—through a flexible, consistent, integrated user interface.

However, to solve many specific business problems, you also need to use such custom applications as corporate mainframe inventory systems, sales analysis systems, department-level personnel systems, office inventory, and others. Many of these applications fall into the traditional data processing model of information systems.

These custom applications typically are purchased either as third-party packages or developed internally by the MIS staff. Sometimes, the simple or ad hoc applications can be developed by nonprogramming staff. In any event, it is important that the office worker can access easily these custom applications using the same user interface that they used for the generic applications. This means you can run standard sales reports using a simple ALL-IN-1 command.

Further, because the information you need may be located anywhere in the organization, the job of finding data and guaranteeing its accessibility, while still protecting the needs of the organization through controlled access, must be managed by the system.

Digital provides the environment that allows you to extend your workstation beyond the generic office applications into the realm of custom information processing. Even into distributed information processing. And all from one workstation, all using the same user interface, all tied into the office capabilities provided by Digital's workstations and ALL-IN-1.

Of course, office systems must address the needs of implementers as well as end users.

Often, development teams must work with primitive development tools and become data communications and networking or database management experts before they can successfully implement even simple information- or communication-intensive applications. They must make painful trade-offs between flexibility and integration. In traditional data processing environ-

ments, expansion or the changing of a single parameter may require code modifications or complete rewrites. The programming effort to take advantage of a new technology may erase any cost savings or efficiency that the new technology offers. As the number of applications grows and becomes intertwined with data and communications functions, the changes required in a single application may break the entire system, due to these interdependencies.

Digital's foundation for integrating of the office system with the information system is built on four major capabilities:

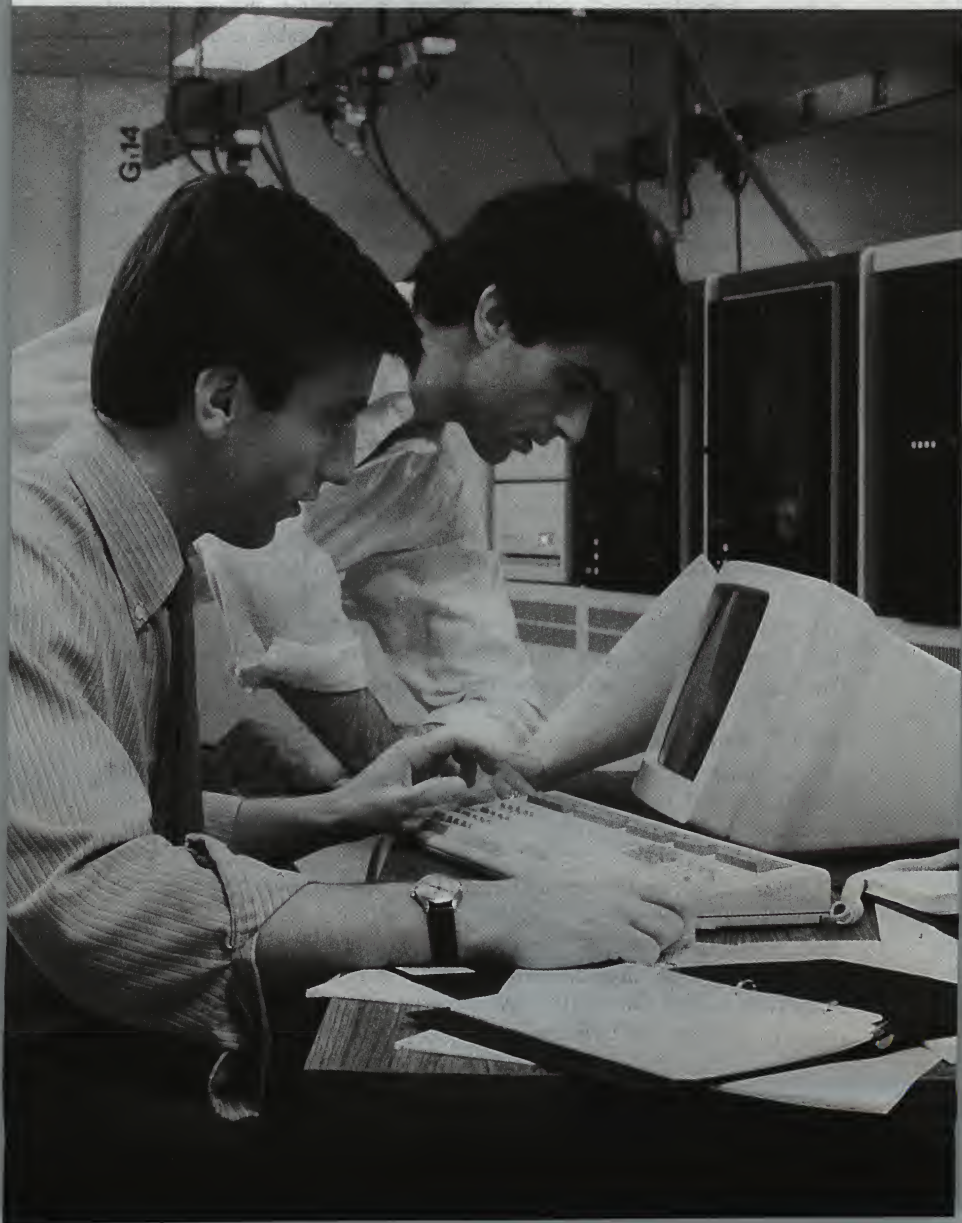
-
- VAX/VMS application development for programmer productivity
 - ALL-IN-1 application development for easy application integration
 - VAX Information Architecture for distributed information management
 - Digital Network Architecture to build the office network
-

ALL-IN-1 concept, enables the Digital Network Architecture, the VAX Information Architecture, and the user interface to give a complete set of powerful and easy-to-use, application development and management tools to the applications developer. Specific custom applications programs can use the same facilities as the generic office capabilities provided by Digital. These tools even can be used to integrate third-party applications.

The powerful ALL-IN-1 integrated system tools significantly enhances application development and operation. Integration is straightforward. High-level, consistent language interfaces manage information or use networking and communications functions. Applications can be added to the system without affecting other applications. The physical system configuration can be changed, without changing one line of applications code. Data can be located anyplace within the network to which the system is connected. Communications and database management code is separate from the applications code to prevent interaction or traumatize growth or change. And much, much more.

This chapter discusses the ALL-IN-1 applications development environment that is supported by the VAX Information Architecture and Digital Network Architecture. It provides important information for the business manager or executive who is considering an office system and it offers technical information for the development manager or application development team member.

Section 1 • Applications Development Tools



Although applications development, per se, is typically not an issue of concern for the office system user, the availability of useful and easy-to-use applications programs is often a key element in the user's perception of the usefulness of the system.

Applications packages or programs are available from many sources such as computer manufacturers, software houses, application houses, service bureaus, systems houses, and users' societies. Considerable resources have been, and will continue to be spent, adapting available applications software to meet the unique needs of a given installation.

Digital has long been recognized as a leader in creating an applications development environment that gives programmers the tools to develop and customize applications quickly and efficiently. It was Digital that pioneered interactive program development. It was Digital that pioneered interactive, online, integrated debugging capabilities. Digital continues to pioneer the development of program and application development tools.

The VAX software system provides an unmatched selection of fully implemented languages for application development. They are BASIC, COBOL, FORTRAN, PL/I, PASCAL, C, BLISS, CORAL, DMS (MUMPS), and DIBOL. VAX also supports a Code Management System (CMS) that helps to manage the development effort. An applications programmer can select the language that is best-suited to a given application, the language that has been used in the past for the application, or use some other criterion. It is the programmer's choice, not constrained by availability of a given language.

A Common Run Time System supports all languages for efficiency and ease of use. Interactive debugging facilities (DEBUG) are integrated within each language processor to create a powerful debugging environment.

Digital's Applications Development Environment (ADE) makes developing small, simple applications easy. Users don't have to learn programming techniques and languages or technical terminology to write their own programs.

The most important feature of Digital's applications development capabilities is the information management, networking and user interface integration, available on VAX/VMS running ALL-IN-1. The Digital Network Architecture, VAX Information Architecture, and the ALL-IN-1 menu-driven user interface and flow control give the programmer straightforward interfaces to facilities that have traditionally required extensive knowledge and

experience. The software that implements these capabilities performs several difficult and time-consuming functions. It establishes and maintains disk structures and access methods, locating information on distributed databases, establishes and drives electronic communications and networks, ensures error-free transmission of data and provides a uniform user interface. The programmer can focus on the unique processing requirements of the application, rather than on information management, communications, and the user interface.

Details of each of the powerful and flexible VAX applications development elements are discussed in other sections of this handbook, The User Interface, Information Management, and Communications Capabilities. More information on any of the languages supported by VAX/VMS is available in the ordering information and product specifications section of this handbook.

• VAX/VMS Common Language Environment

An important feature provided by VAX office systems is a common language environment. VAX languages adhere to a specific set of standards. These standards mean that programs written in any VAX language can share a common library of general purpose procedures, can call any other program on the system, can use a standard file handling service, and can use a standard set of troubleshooting tools. Combined with the ALL-IN-1 Office Menu's application development features, customized, integrated office information system solutions can be developed with maximum flexibility.

Because of the common language environment, programs designed to do specific tasks can be called by other applications, no matter what language these applications are written in.

Some of the common language standards include the following.

Common Run Time Library

The VAX Common Run Time Library contains sets of general purpose and language-specific tasks required for program execution. All of the procedures in the Run Time Library follow the same programming standards and make no conflicting execution assumptions, allowing for a true language-independent common run time environment.

This type of environment will encourage programmers to create programs, composed of procedures written in different languages, increasing programming flexibility.

VAX Calling Standard

The VAX procedure calling standard defines and supports the mechanism for passing information and arguments between modules of major VAX software subsystems, such as languages, VAX Record Management Services, and the VAX/VMS operating system.

This standard allows programs written in one language to be called by programs written in another language. This eliminates the need to write programs or procedures to do a specific task, if the program or procedure has already been written in another language.

Common File Handling

VAX RMS Record Management Services is the standard technique used to handle record I/O on VAX/VMS systems. All VAX applications that conform to the common run-time standards use VAX Record Management Services to accept new input information, read or modify data, and produce output in a meaningful form. The VAX RMS routines are an integral part of the VAX/VMS operating system and are consistent with the VAX calling standard, making it easy for programmers to use VAX RMS in their applications.

Debugging Utility

The VAX/VMS operating system, along with an application known as DEBUG, can assist with troubleshooting and debugging programs. DEBUG can be linked with a program to help the programmer control its execution during development.

Debugging commands start and interrupt program execution, so programmers can step through instruction sequences, call routines, set break or trace points, set default modes, define symbols, and deposit, examine, or evaluate virtual memory locations.

This utility helps your programmers troubleshoot their programs interactively and correct problems faster and more efficiently.

Traceback Facility

VAX/VMS supports a Symbolic Traceback Facility. This facility assists programmers, when errors occur, by describing the call sequences that occurred prior to the error. The traceback facility is automatic and does not require that any special qualifiers be included in an application.

Using information provided by the traceback facility a programmer usually can locate the source of an error in a relatively short time.

• **VAX/DEC/CMS**

DEC/CMS (Digital Equipment Corporation Code Management System) helps software developers manage their project files. Some of its capabilities include storage of text files in a project library, retrieval of previous file generations, report generation of modified files, merging concurrent or separately developed modifications, and storage of related files as a single element.

Each Code Management System command is invoked from the operating system's command level to perform the file management function. Users can edit, compile, and test in the usual manner when each command returns to the operating system's command level. All text files are stored in a project library, including source programs, command files, documentation and test data. Each project can have its own separate library.

• **VAX DEBUG**

The VAX DEBUG program, a language-independent, interactive, symbolic debugger, works with programs written in most of the languages supported by the VAX/VMS operating system. Currently supported languages are: VAX FORTRAN, VAX COBOL, VAX PASCAL, VAX PL/I, VAX BLISS-32, and VAX MACRO assembly language.

With DEBUG you can examine and modify contents of memory locations to help find errors in programs. With it you can set breakpoints in programs to stop execution at specific points, and critical code sections can be single-stepped (line by line or instruction by instruction) to verify correct execution. Since your program execution is controlled by DEBUG, once it is invoked, modifications can be made to the program while it is executing.

• **VAX ADE (Application Development Environment)**

Digital's Application Development Environment (ADE) is a software package you can use to develop small, simple applications without to learn programming techniques and languages or technical terminology.

Applications Development

Product Specifications and Ordering Information

VAX/VMS Operating System	2-11
VAX CORAL 66	2-23
VAX COBOL	2-24
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VAX BLISS-16	2-28
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• VAX/VMS Operating System

Minimum Hardware Required

• For VAX-11/725 and VAX-11/730 Systems

Any VAX-11/725 or VAX-11/730 system with at least one of the following:

- One RC25 drive and at least one megabyte of memory (VAX-11/725 only)
- Two RL02 disk drives and at least one megabyte of memory
- One RL02 disk drive and one R80 disk drive with at least one megabyte of memory
- One UDA (at least at microcode level Rev. 3) with an RA60/80/81 disk drive and either an RA60 disk drive or a TU80 tape drive

• For VAX-11/750 Systems

Any VAX-11/750 system with at least one of the following:

- Two RK07 disk drives and at least 512 kilobytes of memory
- One RM03/RM05/RM80 disk drive and one TE16/TS11/TU77 magnetic tape and at least 512 kilobytes of memory
- One UDA (at least at microcode level Rev. 3) with an RA60/80/81 disk drive and either an RL02 or RA60 disk drive, or a TU77/78/80 tape drive with at least 512 kilobytes of memory

• For VAX-11/780 Systems

Any VAX-11/780 system at ECO Rev. 3 or later with at least one of the following:

- Two RK07 disk drives and at least 512 kilobytes of memory
- One RM03/RM05/RM80/RP05/RP06/RP07 disk drive and one TE16/TU45/TU77/TU78 magnetic tape and at least 512 kilobytes of memory
- One UDA (at least at microcode level Rev. 3) with an RA60/80/81 disk drive and a RA60 or a TU78/80 tape drive with at least 512 kilobytes of memory
- For systems with a C1780, the minimum memory requirement is two megabytes
- One C1780, one HSC50 controller with a RA60/80/81 and a RA60 or a RK07 or a TE16/TU45/TU77/TU78 magtape and at least 2 megabytes of memory

• *For VAX-11/782 Systems*

- The same requirements as for the VAX-11/780 apply except that the minimum amount of shared memory (MA780) in this environment is 1 megabyte, and the minimum local memory required for diagnostic purposes is 256 kilobytes
- The two CPUs of the attached processor VAX-11/782 system must be at the same ECO level. Both CPUs must have the same CPU options, (i.e., if one CPU has an FP780, both must have an FP780.)
- The primary CPU has all the input and output adapters and interfaces connected to it. The SECONDARY (or the ATTACHED) is a bare CPU with 256 kilobytes of local memory for diagnostic purposes. Any input and output devices on the SECONDARY are ignored.

Optional Hardware

Additional memory may be required if additional devices are included in the configuration. Additional memory and/or secondary storage may be required if multiple optional software products are being used concurrently.

• *For VAX-11/782 Systems*

All of the VAX-11/780 optional hardware applies to the VAX-11/782 except for the following CPU options:

- DR780
- KU780 (user writable control store)
- VAX/VMS runs (or resides) in the MA780 shared memory on a VAX-11/782 attached processor configuration. The maximum amount of shared memory (MA780 memory) that can be on the system is eight megabytes (four MA780s with two megabytes on each.)
- RP07 running at 2.2 Mb/sec (1.3Mb/sec is supported on VAX-11/782)

• *For VAX-11/780 Systems*

• *CPU Options*

- Additional memory up to a system total of 32 megabytes
- DR780 high-performance, general purpose interface
- Up to two MA780 multiport memory controllers per system with up to 2048 kilobytes per MA780 controller
- H7112 memory battery back-up (required for powerfail/recovery)
- FP780 floating-point accelerator

-
- DW780 UNIBUS adapter, up to a system total of four
 - KE780 G and H floating point microcode
 - KU780 User Writable Control Store
 - One C1780 interface with up to 16 interconnected nodes (a node being an 22/780, 22/782 or an HSC50, no other device is supported on the C1.) The HSC50 allows storage access from up to 4 processors with a maximum of 24 disk drives per HSC50.
-
- *UNIBUS Disk Systems*
 - Up to four UNIBUS adapters
 - Up to eight disk drives per UNIBUS (RK06 and/or RK07)
 - NOTE: RK06 is not supported as a system device.
 - Up to two UDAs per UNIBUS (at least at microcode level Rev. 3) and any combination of RA60/80/81 disk drives, up to four drives per UDA
 - Up to four RL02 disk drives per system (not supported as a system disk)
 - Up to two RX02 disk drives per system (not supported as a system disk)
-
- *MASSBUS Disk Systems*
 - Up to four MASSBUS adapters can be connected to a VAX-11/780 MASSBUS adapters are available in MASSBUS ADAPTER/DISK SUBSYSTEM combinations, (REM03, REM05, REM80, REP05, REP06, REP07) that include a MASSBUS adapter and disk drive. (RM03, RM80, RP05, RP06, RP07) respectively. Up to seven additional disk drives can be added to a subsystem. Different disk drive types can be attached to the same disk subsystem; this gives a total of 32 disk drives per VAX-11/780 system
 - Refer to MASSBUS Magnetic Tape Systems for information on disks and tapes configured on the same MASSBUS
-
- *MASSBUS Magnetic Tape Systems*
 - MASSBUS adapters are also available in MASSBUS ADAPTER/TAPE SUBSYSTEM combinations. (TEU77, TEE16, TEU45, TEU78) that include a MASSBUS adapter and specific tape formatter and transport, (TU77, TE16, TU45, TU78), respectively. Up to three additional TU77 or TU78 subsystem respectively. Up to seven additional TE16 or TU45 magnetic tape transports can be added to each TEE16 or TEU45 subsystem, respectively. Different magnetic tape transports cannot be mixed on the same TExxx subsystem. A TU78 Master (which includes TM78 formatter and a TU78 transport) can be attached to any MASSBUS tape subsystem.
-

-
- With disks and magnetic tape transports mixed on the same MASSBUS, the following rules apply:
 - Disks can be added to a magnetic tape subsystem, with up to seven add-on disks per TExXX subsystem
 - Tape transports cannot be added to a disk subsystem
 - A TU78 Master (which includes a TM78 formatter and a TU78 transport) can be attached to a disk subsystem
 - The combination of disks and tape formatters must not exceed eight on a single MASSBUS
-

• *UNIBUS Magnetic Tape Systems*

- TS11 or TU80 magnetic tape subsystems, up to a total of four per UNIBUS
-

• *Line Printers*

Up to system total of 16 LA11, LP11, LP11-A, LP11-B, LP11-C, LP11-D, LP11-E, LP11-G, LP11-R, LP11-S, LP11-V, LP11-W, LP11-Y, LP11-Z, LP27 line printers, and the LN01 Laser Printer (at ECO DEC007)

• *Terminals and Terminal Line Interfaces*

- Up to a system total of 48 DZ11 or DZ32 8-line multiplexers or 24 DZ11 16-line multiplexers or 10 DMF32 multipurpose communications interfaces can be connected. The combination of 8-line and 16-line multiplexers per UNIBUS is not to exceed 96 asynchronous lines. The following is the list of terminals that are supported and can interact with VAX/VMS and its associated utilities: VT52, VT100, VT101, VT102, VT105, VT125, VT131, VT132, VT180, VT220, VT240, Rainbow 100, and the PROfessional 350 are supported in VT100 mode; LA12, LA34, LA36, LA38, LA100, LA120, and LQP02 are supported in hard copy mode.
-

The VT131 and VT132, when operating in an application environment, are supported in block mode. When interacting with VAX/VMS and its associated utilities, they are not only supported in VT100 (or interactive) mode, and not in block mode.

The characteristics of the application software and system loading may impose constraints on aggregate throughput. Assuming that the processor is only being used for terminal handling from a user program and that all active terminal lines are contained on the minimum number of controllers, the aggregate terminal throughput is up to 80K characters per second on VAX-11/780 (using a DMF32,) or up to 16K characters per second (using a DZ11 controller.)

To prevent buffer overruns on input the terminals use the ASC11 control character DC1 and DC3 for synchronization as defined by DIGITAL's DEC STD III, Revision A. When used with EDTCA1, the VT1nn series of terminals should be run at 600-2400 baud by no more than four, concurrent EDTCA1 users.

• *Real-Time Devices*

- Up to a total of two LPA11-K microprocessor controllers per UNIBUS for laboratory data acquisition I/O devices, with each LPA11-K able to accommodate up to two AD11-Ks, one AA11-K, one KW11-K, five DR11-Ks, and two AM11-Ks
 - One DR11-W general purpose 16-bit parallel DMA interface
-

• *For VAX-11/750 Systems*

• *CPU Options*

- Additional memory up to a system total of eight megabytes
 - H7112 memory battery back-up (required for powerfail/recovery)
 - DW750 second UNIBUS adapter
 - One DR750 high-performance, general purpose interface
 - KU750 User Writable Control Store
 - FP750 floating point accelerator
-

• *UNIBUS Disk Systems (11/750 may have up to two UNIBUS adapters)*

- Up to eight RK07 disk drives per system
 - Up to four RL02 disk drives per system (not supported as a system device)
 - Up to two RX02 dual-drive subsystems per system (not supported as a systems device)
 - Up to two UDAs per UNIBUS (at least at microcode level Rev. 3) and any combination of RA60, 80, 81 disk drives, up to four drives per UDA
-

• *MASSBUS Disk Systems*

- Up to three MASSBUS adapters can be connected to a VAX-11/750. MASSBUS adapters are available in MASSBUS ADAPTER/DISK SUBSYSTEM combinations (RGM03, RGM05, RGM80, RGP06, RGP07) that include a MASSBUS adapter and disk drive, (RM03, RM05, RM80, RP06, RP07) respectively. Up to seven additional disk drives can be added to a subsystem. Different disk drive types can be attached to the same disk subsystem, this gives a total of 24 disk drives per VAX-11/750 system.
 - Refer to MASSBUS Magnetic Tape Systems for information on disks and tapes configured on the same MASSBUS.
-

• *MASSBUS Magnetic Tape Systems*

- MASSBUS adapters are also available in MASSBUS ADAPTER/TAPE SUBSYSTEM combinations. (TGU77, TGE16) that include a MASSBUS adapter, a tape formatter and a transport (TU77, TE16 respectively.) Up to three additional TU77 magnetic tape transports can be added to a TGU77 subsystem. Up to seven TE16 magnetic tape transports can be added to each TGE16 subsystem. Different magnetic tape transports cannot be mixed on the same TGxxx subsystem.
 - With disks and magnetic tape transports mixed on the same MASSBUS, the following rules apply:
 - Disk can be added to a magnetic tape subsystem, with up to seven add-on disks per TGU77 subsystem.
 - Tapes cannot be added to a disk subsystem.
-

• *UNIBUS Magnetic Tape Systems (11/750 may have up to two UNIBUS')*

- TS11 or TU80 magnetic tape subsystems, up to a system total of two
-

• *Line Printers*

- Up to a system total of four LA11, LP11-A, LP11-B, LP11-C, LP11-D, LP11-E, LP11-G, LP11-R, LP11-S, LP11-V, LP11-W, LP11-Y, LP11-Z, LP27 line printers, and the LN01 Laser Printer (at ECO DEC007)
-

• *Terminals and Terminal Line Interfaces*

- Up to a system total of 16 DZ11 or DZ32 8-line multiplexers or eight DZ11 16-line multiplexers or eight DMF32 multipurpose communications interfaces can be connected. The combination of 8-line or 16-line multiplexers per UNIBUS is not to exceed 64 asynchronous lines. The following is the list of terminals that are supported and can interact with VAX/VMS and its associated utilities: VT52, VT100, VT101, VT102, VT105, VT125, VT131, VT132, VT180, VT220, VT240, Rainbow 100, and the PROfessional 350 are supported in VT100 mode; LA12, LA34, LA36, LA38, LA100, LA120, and LQP02 are supported in hard copy mode.
-

The VT131 and the VT132, when operating in an application environment, are supported in block mode. When interacting with VAX/VMS and its associated utilities, they are only supported in VT100 (or interactive) mode, and not in block mode.

The characteristics of the application software and system loading may impose constraints on aggregate throughput. Assuming that the processor is only being used for terminal handling from a user program and that all active terminal lines are contained on the minimum number of controllers, the aggregate terminal throughput is up to 60K characters per second on VAX-11/750 (using a DMF32), or 16K characters per second (using a DZ11 controller.)

To prevent buffer overruns on input the terminals use the ASC11 control characters DC1 and DC3 for synchronization as defined by DIGITAL's DEC STD III, Revision A. When used with EDTCA1, the VT1nn series of terminals should be run at 600-2400 baud by no more than two concurrent EDTCA1 users.

• *Real-Time Devices*

- Up to a system total of two (one per UNIBUS) LPA-11K microprocessor controllers for laboratory data acquisition I/O devices, each accommodating up to two AD11-Ks, one AA11-K, one KW11-K, five DR11-Ks, and two AM11-Ks.
 - One DR11-W general purpose 16-bit parallel DMA interface per system
-

For VAX-11/725 and VAX-11/730

- NOTE: Combinations of hardware options are subject to limitations such as bandwidth, physical configuration restraints and electrical loads/power
-

• *CPU Options*

- Additional memory up to a system total of five megabytes for VAX-11/730, RL02/R80 and RL02/RL02 systems. Up to 3 megabytes for VAX-11/725 and other VAX-11/730 systems.
- FP730 floating point accelerator
- Up to two RL02 disk drives can be added to the dual RL02 and the R80/RL02 Package Systems

• *UNIBUS Disk Systems (11/730 has ONE UNIBUS)*

- Up to eight RK07 disk drives on one RK711 controller
- Up to four RL02 disk drives on one RL211 controller*
- One RX211 floppy disk subsystem (two RX02 drives) not supported as a system device*
- One UDA per UNIBUS (at least at microcode level Rev. 3) and any combination of RA60/80/81 disk drives, up to four drives per UDA

*Not available on VAX-11/725

• *UNIBUS Magnetic Tape Systems*

- One TS11 or TU80 magnetic tape subsystem

• *Line Printers*

- One LP32 line printer per system, connected to a DMF32
- One LP11 line printer per system with built-in controller

• *Terminals and Terminal Line Interfaces*

- Up to a system total of three DMF32 multipurpose communications interfaces. (8 asynchronous lines per DMF32,) or 2 DMF32 interfaces and one DZ11 or DZ32 interfaces and one DZ11 or DZ32 8-line multiplexer. The number of asynchronous lines per system not to exceed 24.

The following terminals are supported and can interact with VAX/VMS and its associated utilities: VT52, VT100, VT101, VT102, VT105, VT125, VT131, VT132, VT180, VT220, VT240, Rainbow 200, and the PROfessional 350 are supported in VT100 mode; LA12, LA34, LA36, LA38, LA100, LA120, and LQP02 are supported in hard copy mode.

The VT131 and VT132, when operating in an applications environment, are supported in block mode. When interacting with VAX/VMS and its associated utilities they are only supported in VT100 (or interactive) mode, and not in block mode.

The characteristics of the application software and the system loading may impose constraints on aggregate throughput. Assuming that the processor is only being used for terminal handling from a user program and that all active terminal lines are contained on the minimum number of controllers, the aggregate terminal throughput is up to 35K characters per second on VAX-11/730 (using a DMF32.)

- *Real-Time Devices*

-
- One DR11-W general purpose 16-bit parallel DMA interface per system (optional RL02 distribution (QC00B-PH) is required for example driver)
-

- *RL02 Distribution Kits*

The distribution kit for the VAX-11/730 consists of a PRIMARY Disk (RL02) that is part of the QC001-AH kit, which is delivered as part of the VAX-11/730 supported package systems, and an OPTIONAL disk (RL02) which is not part of the QC001-AH or QC001-HH kit. The OPTIONAL Disk is not distributed in the VAX-11/730 package systems.

The distribution kit for the RA80/RL02 VAX-11/750 configuration consists of two RL02 disks labeled "primary" and "optional." Both disks are included in all supported VAX-11/750 package systems that require RL02 distribution. The optional RL02 disk is also included in the QD001-HH kit.

VAX/VMS Operating System Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries documentation, microfiche, support services.	QC001-AH	QD001-AH QD001-AM QD001-AV QD001-AJ	QE001-AM QE001-AV QE001-AJ
Single-use license-only option no binaries, no documentation, no microfiche, no support services.	QC001-DZ	QD001-DZ	QE001-DZ
Installation, Warranty, and Training Credits.	QC001-AZ	QD001-AZ	QE001-AZ
Sources license, sources, no support services.	QC001-MM	QD001-MM	QE001-MM
Source license, additional listings on microfiche, no support services.	QC001-FR	QD001-FR	QE001-FR
Update/Unsupported Options Users of VAX/VMS whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC001-HH	QD001-HH QD001-HM QD001-HV QD001-HJ	QE001-HM QE001-HV QE001-HJ
Right to copy for single-use, no binaries, no documentation, no support services.	QC001-HZ	QD001-HZ	QE001-HZ

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Sources/Listings Update Options			
The following options are available to license users as updates to sources and/or listings options. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated.	QC001-NM	QD001-NM	QE001-NM
Miscellaneous Options			
Documentation-only kits	QC001-GZ	QD001-GZ	QE001-GZ
Optional RL02 disk	QC00B-PH	QD00B-PH*	N/A

*The optional RL02 disk is included in all supported VAX-11/750 RL02/RA80 package systems.

**The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

NOTE: Only one binary supported license, regardless of CPU type, is required before the purchase of an unsupported license-only option. The applicable media to accompany a single-use license-only option, if required, can be obtained by ordering the applicable update kit at list price.

The following key (G, H, J, M, R, V, Y, Z) represents the distribution media for the product and must be specified at the end of the Order Number, e.g., QC001-AH = binaries on RL02 Disk Cartridge.

G = TU58 DECTape II Cartridge*

R = Microfiche

H = RL02 Disk Cartridge

V = RK07 Disk Cartridge

J = RA60 Disk Cartridge

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

*The TU58 is to be used only in a stand-alone, lightly loaded environment. If used as a file device on a heavily-loaded system, it can degrade system performance.

VAX/VMS Operating System Ordering Information

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU.			
Single Use License	QC001-UZ	QD001-UZ	QE001-UZ
Materials and Service Options:			
Packaged Service Options:			
System Start-Up Service Package, Level III	QC001-B4	QD001-BH	QE001-BM
	QC001-BH	QD001-BM	QE001-BV
	QC001-BJ	QD001-BV	QE001-BJ
	QC001-BM	QD001-BJ	
System Start-Up Service Package, Level II	QC001-74	QD001-7H	QE001-7M
	QC001-7H	QD001-7M	QD001-7V
	QC001-7J	QD001-7V	QE001-7J
	QC001-7M	QD001-7J	
System Start-Up Service Package, Level I	QC001-54	QD001-5H	QE001-5M
	QC001-5H	QD001-5M	QE001-5V
	QC001-5J	QD001-5V	QE001-5J
	QC001-5M	QD001-5J	
Distribution and Documentation Option	QC001-H4	QD001-HH	QE001-HM
	QC001-HH	QD001-HM	QE001-HJ
	QC001-HJ	QD001-HJ	QE001-HV
	QC001-HM	QD001-HV	
Software Revision			
Right-To-Copy Option	QC001-GZ	QD001-GZ	QE001-GZ
Documentation Only Option	QC001-6Z	QD001-6Z	QE001-6Z
Installation Service Option	QC001-I4	QD001-IH	QE001-IM
	QC001-IH	QD001-IM	QE001-IJ
	QC001-IJ	QD001-IJ	QE001-IV
	QC001-IM	QD001-IV	

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QC001-HH = binaries on RL02disk cartridge.

4 = RC25 Disk Cartridge
 G = TU58 DECtape II Cartridge*
 H = RL02 Disk Cartridge
 J = RA60 Disk Cartridge
 M = 9-track 1600 BPI Magtape (PE)

R = Microfiche
 V = RK07 Disk Cartridge
 Y = RX01 Floppy Diskette
 Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX CORAL 66

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration with

- 760 blocks of disk storage
- 3650 blocks required for peak usage

• VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- Supports any mass storage, unit-record, or terminal device supported by the prerequisite software.

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX CORAL 66

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC067-UZ	QD067-UZ	QE067-UZ
VAXcluster License		QD067-QZ	QE067-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC067-HG	QD067-HG	QE067-HY
Software Revision Right-To-Copy Option	QC067-HZ	QD067-HZ	QE067-HZ
Installation Service Option	QC067-IG	QD067-IG	QE067-IY
Software Product Service Agreements:			
DECsupport Service	QC067-9G	QD067-9G	QE067-9Y
Basic Service	QC067-8G	QD067-8G	QE067-8Y
Self-Maintenance Service	QC067-8G	QD067-8G	QE067-8Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC067-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX COBOL

Minimum Hardware Required

Any valid VAX-11/780 or VAX-11/782 system under VAX/VMS at ECO REV 4 or later.

Any valid VAX-11/750 or VAX-11/730 system under VAX/VMS.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- VAX DBMS and VAX Common Data Dictionary (CDD) required to use COBOL Data Manipulation Language features.
- VAX Common Data Dictionary (CDD) required to use COPY FROM DICTIONARY feature.

Training Credits

- None

Software Installation

- Customer Installed

- **VAX COBOL**

Ordering Information

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
DECsupport Service	QC099-9G	QD099-9G	QE099-9Y
Basic Service	QC099-8G	QD099-8G	QE099-8Y
Self-Maintenance Service	QC099-3G	QD099-3G	QE099-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC099-HG = binaries on TU58 DEctape II Cartridge.

G = TU58 DEctape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX C

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration that includes at least

- 512 kilobytes of physical memory
- Two megabytes of virtual page file quota
- 250 page minimum of working set
- 1600 blocks of permanent disk storage
- 2600 blocks of disk storage temporarily required during installation procedure

• VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730

Optional Hardware

- FP780 Floating Point Accelerator (for VAX-11/780)
- FP750 Floating Point Accelerator (for VAX-11/750)
- FP730 Floating Point Accelerator (for VAX-11/730)

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installable

• VAX C Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries, documentation, support services.	QC015-AG	QD015-AG	QE015-AY
Single-use license-only option, no binaries, no documentation, no support services.	QC015-DZ	QD015-DZ	QE015-DZ
Update/Unsupported Options Users of VAX C whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC015-HG	QD015-HG	QE015-HY
Right-to-copy for single-use, no binaries, no documentation, no support services.	QC015-HZ	QD015-HZ	QE015-HZ
Miscellaneous Options Documentation-only kits.	QC015-GZ	QD015-GZ	QE015-GZ

**The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

The following key (G, Y, Z) represents the distribution media for the product and must be specified at the end of the Order Number, e.g., QD015-AG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge*

Y = RX01 Floppy Diskette

Z = No hardware dependency

Refer to preceding table for available options.

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX BLISS-16 Implementation Language

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration.

BLISS-16 compiler performance, under VAX/VMS, varies with the virtual memory working set allowed for it.

- With large-scale compilation of complex programs, a working set allocation of over 300 pages (150 Kbytes) may be desirable for efficient system utilization.
- In an environment where only a single BLISS compilation occurs at any time, a system configuration of 512 Kbytes of memory is required.
- In a multiuser environment, where several concurrent compilations occur, a minimum of one megabyte is recommended.

• VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX BLISS-16 Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC014-UZ	QD014-UZ	QE014-UZ
VAXcluster License		QD014-QZ	QE014-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC014-HG	QD014-HG	QE014-HY
Software Revision Right-To-Copy Option	QC014-HZ	QD014-HZ	QE014-HZ
Documentation Only Option	QC014-GZ	QD014-GZ	QE014-GZ
Installation Service Option	QC014-IG	QD014-IG	QE014-IY
Software Product Service Agreements:			
DECsupport Service	QC014-9G	QD014-9G	QE014-9Y
Basic Service	QC014-8G	QD014-8G	QE014-8Y
Self-Maintenance Service	QC014-3G	QD014-3G	QE014-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC014-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX BLISS-32 Implementation Language

Minimum Hardware Required

Any valid VAX/VMS Operating System Configuration

BLISS-32 compiler performance varies with the virtual memory working set allowed for it.

- With large-scale compilation of complex programs, a working set allocation of over 300 pages (150 Kbytes) can be desirable for efficient system utilization.
- In an environment where only a single BLISS compilation occurs at any time, a system configuration of 512 Kbytes of memory is required.
- In a multiuser environment, where several concurrent compilations occur, a minimum of one megabyte is recommended.

• VAX-11/730

- An R80/RL2 configuration is required for VAX-11/730 systems.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Software Product Support

- VAX BLISS-32 Implementation Language includes standard warranty services.

Training Credits

- None

Software Installed

- Customer Installed

• VAX BLISS-32 Implementation Language Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC106-UZ	QD106-UZ	QE106-UZ
VAXcluster License		QD106-QZ	QE106-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC106-HG	QD106-HG	QE106-HY
Software Revision Right-To-Copy Option	QC106-HZ	QD106-HZ	QE106-HZ
Documentation Only Option	QC106-GZ	QD106-GZ	QE106-GZ
Installation Service Option	QC106-IG	QD106-IG	QE106-IY
Software Product Service Agreements:			
DECsupport Service	QC106-9G	QD106-9G	QE106-9Y
Basic Service	QC106-8G	QD106-8G	QE106-8Y
Self-Maintenance Service	QC106-3G	QD106-3G	QE106-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC106-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX BASIC

Minimum Hardware Required

Any valid VAX/VMS system configuration with

- At least 3500 free blocks of disk space available on the public disk structure for installation
- At least 2000 free blocks of disk space available on the public disk structure for use

NOTE

To execute G— and H— floating point data type extended range instructions directly on the VAX/11-780, both the KU780 and KE780 hardware options must be present. To execute these instructions directly on the VAX-11/750, the KU750 hardware option must be present. The VAX-11/730 does not require any additional hardware options to execute G— and H— floating point instructions.

Optional Hardware

- FP730 Floating Point Accelerator
- FP750 Floating Point Accelerator
- FP780 Floating Point Accelerator
- KE780 G & H Microcode for VAX-11/780
- KU750 User Control Store Hardware and G & H Format
- Microcode for VAX-11/750
- KU780 User Control Store Hardware for VAX-11/780

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- BASIC Transportability Package
- VAX Common Data Dictionary (CDD)

Training Credits

- None

Software Installation

- Customer Installed

• VAX BASIC

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC095-UZ	QD095-UZ	QE095-UZ
VAXcluster License		QD095-QZ	QE095-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC095-HG	QD095-HG	QE095-HY
Software Revision Right-To-Copy Option	QC095-HZ	QD095-HZ	QE095-HZ
Documentation Only Option	QC095-GZ	QD095-GZ	QE095-GZ
BASIC Beginner's Documentation Only Option	QX095-GZ	QX095-GZ	QX095-GZ
Installation Service Option	QC095-IG	QD095-IG	QE095-IY
Software Product Service Agreements:			
DECsupport Service	QC095-9G	QD095-9G	QE095-9Y
Basic Service	QC095-8G	QD095-8G	QE095-8Y
Self-Maintenance Service	QC095-3G	QD095-3G	QE095-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC095-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX APL

Minimum Hardware Required

Any valid VAX/VMS system configuration

• For VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems

Optional Hardware

- FP730 Floating Point Accelerator
- FP750 Floating Point Accelerator
- FP780 Floating Point Accelerator

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX APL Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC020-UZ	QD020-UZ	QE020-UZ
VAXcluster License		QD020-QZ	QE020-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC020-HG	QD020-HG	QE020-HY
Software Revision Right-To-Copy Option	QC020-HZ	QD020-HZ	QE020-HZ
Documentation Only Option	QC020-GZ	QD020-GZ	QE020-GZ
Installation Service Option	QC020-IG	QD020-IG	QE020-IY
Software Product Service Agreements:			
DECsupport Service	QC020-9G	QD020-9G	QE020-9Y
Basic Service	QC020-8G	QD020-8G	QE020-8Y
Self-Maintenance Service	QC020-3G	QD020-3G	QE020-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC020-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX ADE Application Development Environment

Minimum Hardware Required

Any valid VAX/VMS system configuration with

- At least 1600 blocks of disk space
- At least 1 megabyte of main memory
- VT100 or VT52 terminal

• VAX/730 Systems

- An R80/RL02 configuration is required for VAX/730 systems

NOTE: For interactive use of VAX ADE, it is recommended that terminals be run on lines with transfer rates of at least 1200 baud.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

VAX ADE **Ordering Information**

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC425-UZ	QD425-UZ	QE425-UZ
VAXcluster License		QD425-QZ	QE425-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC425-HG	QD425-HG	QE425-HY
Software Revision Right-To-Copy Option	QC425-HZ	QD425-HZ	QE425-HZ
Documentation Only Option	QC425-GZ	QD425-GZ	QE425-GZ
Installation Service Option	QC425-IG	QD425-IG	QE425-IY
Software Product Service Agreements:			
DECsupport Service	QC425-9G	QD425-9G	QE425-9Y
Basic Service	QC425-8G	QD425-8G	QE425-8Y
Self-Maintenance Service	QC425-3G	QD425-3G	QE425-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC425-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX DEC/CMS Digital Equipment Corporation Code Management System

Minimum Hardware Required

Any valid VAX/VMS operating system configuration having sufficient on-line mass storage to accommodate VAX DEC/CMS and the project libraries. Most projects will require no more storage than they are now using. The VAX DEC/CMS system requires 600 blocks for operation and an additional 3000 blocks during installation.

• VAX-11/730 System

An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- None
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

- Software Installation
-

• VAX DEC/CMS

Digital Equipment Corporation Code Management System Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC007-UZ	QD007-UZ	QE007-UZ
VAXcluster License		QD007-QZ	QE007-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC007-HG	QD007-HG	QE007-HY
Software Revision Right-To-Copy Option	QC007-HZ	QD007-HZ	QE007-HZ
Documentation Only Option	QC007-GZ	QD007-GZ	QE007-GZ
Installation Service Option	QC007-IG	QD007-IG	QE007-IY
Software Product Service Agreements:			
DECsupport Service	QC007-9G	QD007-9G	QE007-9Y
Basic Service	QC007-8G	QD007-8G	QE007-8Y
Self-Maintenance Service	QC007-3G	QD007-3G	QE007-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC007-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX DIBOL

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration

• VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX DIBOL

Ordering Information

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC018-UZ	QD018-UZ	QE018-UZ
VAXcluster License		QD018-QZ	QE018-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC018-HG	QD018-HG	QE018-HY
Software Revision Right-To-Copy Option	QC018-HZ	QD018-HZ	QE018-HZ
Documentation Only Option	QC018-GZ	QD018-GZ	QE018-GZ
Installation Service Option	QC018-IG	QD018-IG	QE018-IY
Software Product Service Agreements:			
DECsupport Service	QC018-9G	QD018-9G	QE018-9Y
Basic Service	QC018-8G	QD018-8G	QE018-8Y
Self-Maintenance Service	QC018-3G	QD018-3G	QE018-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC018-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX DSM

Minimum Hardware Required

Any valid VAX/VMS system configuration that includes

- 2 megabytes of physical memory
- 2 megabytes of virtual page file
- 3300 blocks of disk storage

• VAX-11/730 Systems

An R80/RL02 configuration is required for VAX-11/730 systems

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX DSM Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC130-UZ	QD130-UZ	QE130-UZ
VAXcluster License		QD130-QZ	QE130-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC130-HG	QD130-HG	QE130-HY
Software Revision Right-To-Copy Option	QC130-HZ	QD130-HZ	QE130-HZ
Documentation Only Option	QC130-GZ	QD130-GZ	QE130-GZ
Installation Service Option	QC130-IG	QD130-IG	QE130-IY
Software Product Service Agreements:			
DECsupport Service	QC130-9G	QD130-9G	QE130-9Y
Basic Service	QC130-8G	QD130-8G	QE130-8Y
Self-Maintenance Service	QC130-3G	QD130-3G	QE130-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC130-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

• VAX FORTRAN

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration

Optional Hardware

- FP730 Floating Point Accelerator
- FP750 Floating Point Accelerator
- FP780 Floating Point Accelerator
- KU780 User Control Store Hardware for VAX-11/780
- KE780 G & H Microcode for VAX-11/780
- KU750 User Control Store Hardware and G & H Format Microcode for VAX-11/750

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX FORTRAN

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries, documentation, support services.	QC100-AG	QD100-AG	QE100-AG
Single-use license-only option, no binaries, no documentation, no support services.	QC100-DZ	QD100-DZ	QE100-DZ

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Sources license, sources, no support services.			
Note: VAX FORTRAN sources are written in VAX BLISS-32; therefore, a VAX BLISS-32 compiler is required for compilation	QC100-EM	QD100-EM	QE100-EM
Update/Unsupported Options Users of VAX FORTRAN whose specified Support Category war- ranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a binary, single-use, license- only option. Options are distrib- uted in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC100-HG	QD100-HG	QE100-HY
Right-to-copy for single-use, no binaries, no documentation.	QC100-HZ	QC100-HZ	QE100-HZ
Sources Update Options The following options are available to licensed users as updates to sources. The update is distributed in source form on the appropriate medium and includes no installa- tion or other services unless specifi- cally stated.	QC100-NM	QD100-NM	QE100-NM
Miscellaneous Options Documentation-only kits.	QC100-GZ	QD100-GZ	QE100-GZ

**The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

The following key (G, M, Y, Z) represents the distribution media for the product and must be specified at the end of the Order Number, e.g., QC100-AG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge*
M = 9-track 1600 BPI Magtape (PE)
Y = RX01 Floppy Diskette
Z = No hardware dependency

Refer to the preceding table for available options.

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX PASCAL

Minimum Hardware Required

Any valid VAX/VMS system configuration

Optional Hardware

- FP780 Floating Point Accelerator
- FP750 Floating Point Accelerator
- FP730 Floating Point Accelerator
- KE780 G— and H— Format Microcode for VAX-11/780
- KU780 User Control Store Hardware for VAX-11/780
- KU750 User Control Store Hardware and G— and H— Format Microcode for VAX-11/750

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX PASCAL Ordering Information

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC126-UZ	QD126-UZ	QE126-UZ
VAXcluster License		QD126-QZ	QE126-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC126-HG	QD126-HG	QE126-HY
	QC126-HM	QD126-HM	QE126-HM
Software Revision Right-To-Copy Option	QC126-HZ	QD126-HZ	QE126-HZ
Documentation Only Option	QC126-GZ	QD126-GZ	QE126-GZ
Installation Service Option	QC126-IG	QD126-IG	QE126-IY
	QC126-IM	QD126-IM	QE126-IM
Software Product Service Agreements:			
DECsupport Service	QC126-9G	QD126-9G	QE126-9Y
	QC126-9M	QD126-9M	QE126-9M
Basic Service	QC126-8G	QD126-8G	QE126-8Y
	QC126-8M	QD126-8M	QE126-8M
Self-Maintenance Service	QC126-3G	QD126-3G	QE126-3Y
Source Code and Materials Options:			
Source License and Sources Distribution	QC126-EM	QD126-EM	QE126-EM
Sources Distribution	QC126-NM	QD126-NM	QE126-NM

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC126-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX PL/I

Minimum Hardware Required

An valid VAX/VMS system configuration with

- 512 kilobytes of physical memory
- Two megabytes of virtual page file quote
- 250 page minimum working set
- 1200 blocks of disk storage (compiler, run-time system, HELP files, and INCLUDE libraries)

• VAX-11/730 Systems

An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- FP780 Floating Point Accelerator
- FP750 Floating Point Accelerator
- FP730 Floating Point Accelerator
- KU780 User Control Store Hardware for the VAX-11/780
- KE780 G— H— Format Microcode for the VAX-11/780
- KU750 User Control Store Hardware and G— and H— Format Microcode for the VAX-11/750

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

• VAX PL/I Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC114-UZ	QD114-UZ	QE114-UZ
VAXcluster License		QD114-QZ	QE114-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC114-HG	QD114-HG	QE114-HY
Software Revision Right-To-Copy Option	QC114-HZ	QD114-HZ	QE114-HZ
Documentation Only Option	QC114-GZ	QD114-GZ	QE114-GZ
Installation Service Option	QC114-IG	QD114-IG	QE114-IY
Software Product Service Agreements:			
DECsupport Service	QC114-9G	QD114-9G	QE114-9Y
Basic Service	QC114-8G	QD114-8G	QE114-8Y
Self-Maintenance Service	QC114-3G	QD114-3G	QE114-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

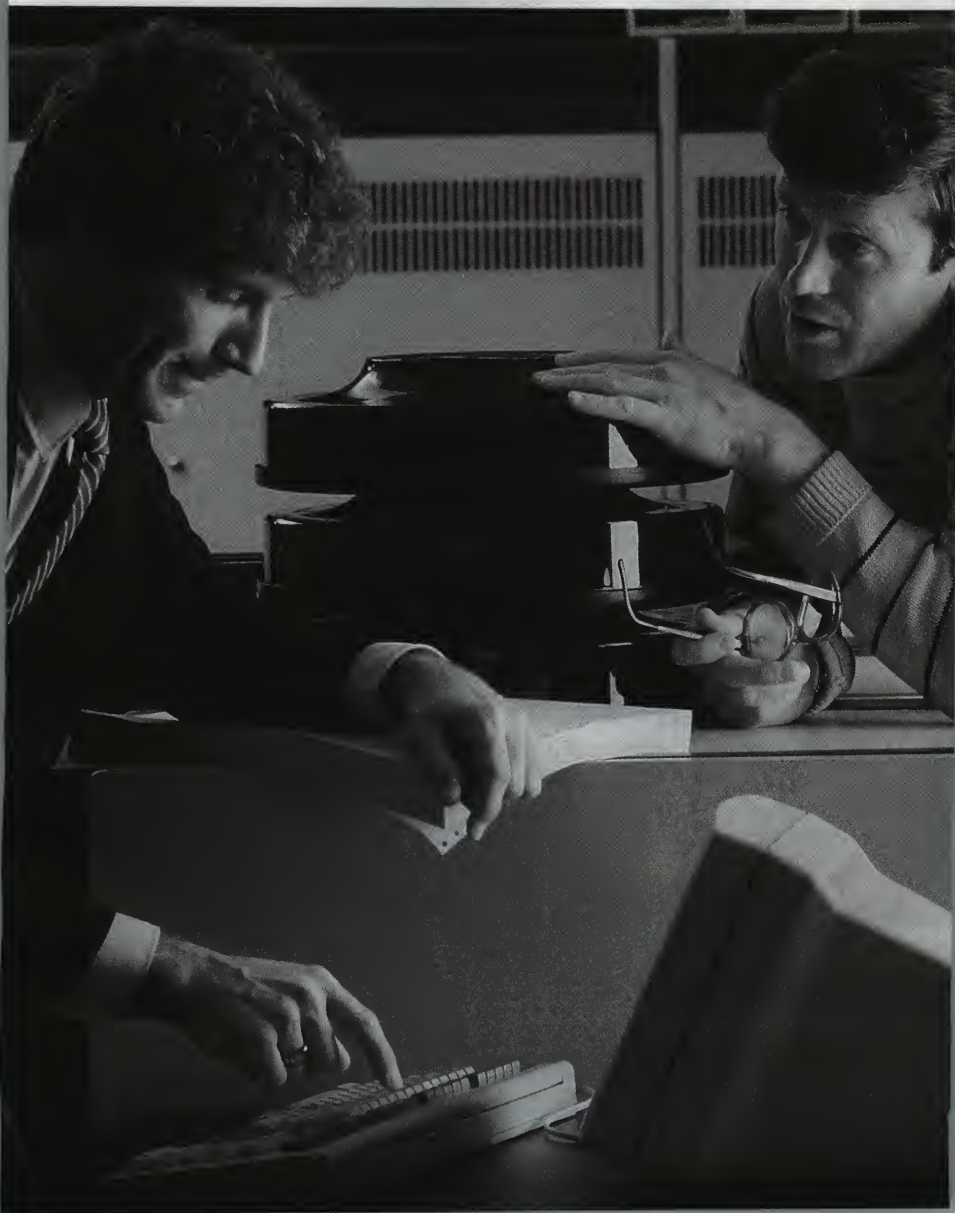
The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC114-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

Section 2 • Information Management



Information management is a critical aspect of an office information system. Digital's VAX Information Architecture is a set of information management products. When combined with our networking capabilities under DECnet, the products provide the tools to build and manage complex information systems across departmental, computer, or even organizational boundaries, while retaining control of the organizations' information asset.

The integration of ALL-IN-1 and the VAX Information Architecture set produces a sum greater than its parts. Not only can traditional data processing information be managed, but through one integrated tool, the user can access text, graphics, or even voice data.

Finally, the VAX Information Architecture product set directly addresses the life cycle cost of major MIS application development and maintenance. And, these products are also used to deliver flexibility and end-user programmability to the department and the desk.

The following paragraphs discuss the key challenges of information management and Digital's many products that help you meet these challenges.

- Access
- Multiple information types
- Control
- Maintenance
- Distribution

Let's examine each of these challenges in detail, highlighting Digital's capabilities to address each.

Access

The office is where you are. That means that information must be accessible from a wide variety of workstations—from a telephone or a portable terminal, through a VT100 or VT200 terminal, or through your Digital personal computer.

Each user will have a terminal or workstation in his office. Perhaps a VAXstation for engineers, a DECmate for secretaries, a Professional for yourself. But you all need to access the information you share.

Multiple Information Types

One of the consequences of bringing computers to the office worker is the many new types of information office workers use every day. Formatted documents, business graphics, engineering drawings, electronic mail messages. All of these are in addition to the more familiar data processing records and files. But you need to manage all this information to get your job done, no matter how or where it was created or what form it's in—that's the system's problem.

Control

The very rapid increase in the number of personal computers and word processors means that a whole new class of users is creating information in electronic form. That information represents much of an employee's added value, and therefore, is as much of a key corporate asset as today's mainframe data processing databanks.

If information is one of a company's key assets, then, like all other assets, it needs to be managed and secured. Today the problem is small, but significant. Over the next few years the increased investments companies are making in personal computers and word processors will escalate the problems of information management to much larger proportions.

Maintenance

Keeping information up to date has always been a major cost of doing business. Traditionally, it was managed by the data processing centers, using powerful tools such as large mainframes. Increasingly, information is maintained with transactions entered directly from a terminal. But the spread of minicomputers, personal computers, and word processors has exacerbated duplication and maintenance problems.

Many of the newer users are unfamiliar with back-up and restore techniques. Since information creation is fragmented, updating it also will require an increasing amount of professional and management time.

Distribution

The increasing cost of computing has opened the question of how best to distribute computing resources throughout a company. Users now have, for the first time, the choice of personal, departmental, or organizational computing.

Initially, the decision is often made on cost alone—how much can my department's budget stand? But more and more users are left wondering about the best way to distribute information as well as computing.

Digital's VAX Information Management helps you face these information management challenges, with the following set of products.

- VAX Common Data Dictionary (CDD). Digital's query and report writing language.
- VAX DECgraph and DECslide. Data plotting and graphics software.
- VAX TDMS. Digital's terminal data management package that displays forms and manages data on terminals or workstations.
- VAX FMS. Digital's forms management utility used to create and manage simple screen forms. It is extensively used in the ALL-IN-1 Office Menu.
- VAX ACMS. Digital's software for application management and development.
- VAX DBMS and VAX RMS. Digital's data management products.

VAX CDD is the key to the VAX Information Architecture. The CDD defines and locates data definitions regardless of the data modeling technique used. All of the VAX Information Architecture products can use the same data and the same files because the definitions describing record structures are stored in the CDD. You can use a CDD record definition in VAX COBOL to read and process a file created by DATATRIEVE, for example. You do not have to write special programs to allow different products to work together, and you don't have to store redundant copies of data files, each is suited to a specific product.

VAX DATATRIEVE is a popular and powerful query and applications development language that allows a VAX user or applications program to store, update, and retrieve data interactively. It can generate attractive reports and graphs, and retrieve data from other computers in a computer network, as easily as you can from your own computer. It can combine data from two or more files, prototype and test new applications, and store often-used sequences of statements as procedures.

VAX DECgraph and VAX DECslide allow information to be displayed easily in graphic form for analysis or presentation support. These products are described in detail in the Graphics section of the Office Capabilities chapter.

VAX TDMS is a complete set of state-of-the art tools for reducing the life-cycle costs of developing and maintaining interactive, screen-based applications. TDMS expands the traditional concept of forms management to include control of all input and output. For example, instructions for input and output, checking value ranges, and for testing whether or not possible conditions are true are placed in the TDMS request. Traditionally, these tasks would have been included in applications programs. It's totally integrated into

the VAX Information Architecture (request, form, and record definitions are stored in the CDD) and TDMS provides a firm foundation on which future capabilities for system control and transaction processing applications can be built.

VAX FMS is a general purpose forms management system that provides a flexible way for interactive applications to talk to users on video workstations. The ALL-IN-1 Office Menu user interface, for example, is driven by FMS, making all of the Office Menu's screens easily customizable.

VAX ACMS is a powerful and flexible information management tool that lets the applications programmer manage complex, multiuser, transaction-driven application systems. The typical ACMS application involves simultaneous access to a common database by users with little or no computer experience. Applications well-suited to ACMS include hotel reservations systems, personnel administration systems, and fund transfer systems. With ACMS, the programmer can easily create and modify applications menus, control which users can run which tasks, keep track of the volume of tasks run and who runs them, keep records of the operations of the system and the resources used by an application, and add new tasks to an application or new users to a task. ACMS can be used to control applications developed with any of the VAX languages or VAX Information Architecture tools. ACMS applications are easier to create, easier to understand, and easier to change than standard application programs.

VAX RMS (Record Management System) is a traditional information organization and management system with one important difference. It is tightly coupled with the VAX Information Architecture through the Common Data Dictionary, with all the benefits of such integration. RMS provides the important logical interface between applications programs, DATATRIEVE, and the VAX information storage system.

VAX DBMS is a full-scale CODASYL-compliant database management system. It provides the software to define, create, and manage data in simple or complex databases, for example, hierarchical and network databases. Tight integration of all the DBMS utilities within the VAX Information Architecture lets programmers step through database constructions and debugging with unprecedented ease. All DBMS database definitions are stored in the CDD, so whenever a new field, relationship, or record is added to the database, change is required only in the CDD and there is usually no need to rewrite the programs that use the database or to reorganize the database itself. Security of the database is enhanced through controlled user access, and integrity features protect data from errors due to software or hardware failures.

• **VAX Common Data Dictionary CDD**

The VAX Common Data Dictionary (CDD) is the keystone of the VAX Information Architecture. The CDD is essential to the operation of VAX DATATRIEVE, the VAX Database Management System, the VAX Application Control Management System, and the VAX Terminal Data Management System. It provides you with a single logical data dictionary for a VAX/VMS system.

Storage of VAX Information Architecture Definitions

The CDD Stores record-format descriptions and domain definitions for VAX RMS files and information for the VAX Terminal Data Management System. It also contains VAX DATATRIEVE procedures, tables, and graphic plots.

It is a central source for data definitions. You don't have to spend valuable time trying to figure out where this type of information may have been stored the last time it was used.

Storage of VAX Database Management System Definitions

The Common Data Dictionary stores database data descriptions. These definitions are used by the VAX Database Management System to build and later reference database structures.

The VAX Common Data Dictionary is one central location to find database descriptions for applications. Since there is no need for database descriptions to be included with every program that must access a single database, this saves your programmers valuable time when developing new applications.

Access Control List

The access control list specifies a class of user as well as the type of access to the directory or data description.

The Common Data Dictionary keeps track of which users can have access to what kinds of data. With this feature you can control the security of your information.

Common Data Definition Language

The common data definition language is utility that provides a generic facility to enter, modify, and display record definitions for the VAX languages.

Once a record definition has been entered into the CDD, it can be used by the language compilers or VAX DATATRIEVE. This means only one definition per record needs to be stored in the VAX CDD instead of having multiple copies of the same record defined in each application that may need it.

• VAX Datatrieve

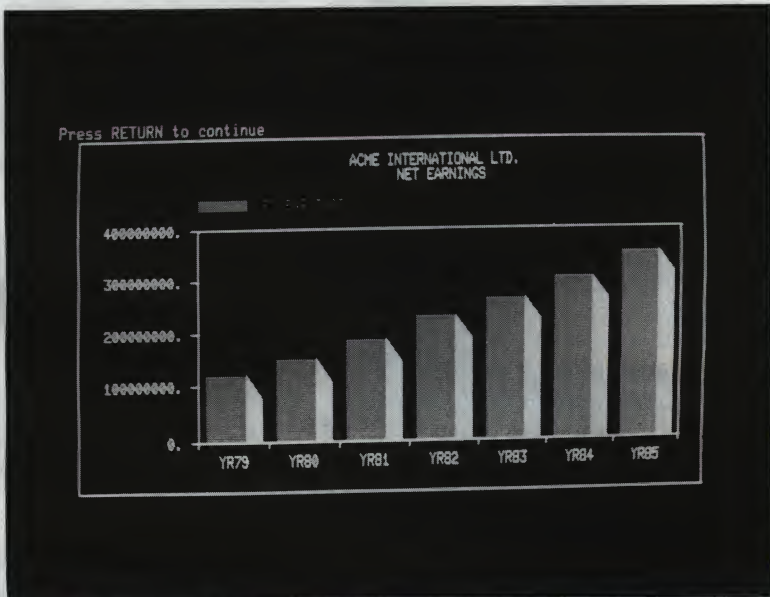
VAX DATATRIEVE is a comprehensive data management tool. You can work with it interactively and your applications can call on it to access data (in record-based files or in more complex, interrelated database structures). A query and report writer with full update capabilities, DATATRIEVE also includes an integrated graphics capability. Forms support is provided through the VAX Forms Management System or the VAX Terminal Data Management System. The VAX DATATRIEVE facility consists of four major subcomponents: a query and report-writing facility and a business graphics capability at the user-interface, level and below that, the local and distributed High-level data access facilities.

VAX DATATRIEVE is easy to use. New users can learn how to use it and become more productive in their jobs very quickly.

Guide Mode

A self-teaching mode of operation for the novice user. You can be guided through your VAX DATATRIEVE sessions with a series of prompts.

Guide mode enables you to work productively with DATATRIEVE while learning to use it.



English Commands

Commands are in simple English. They are declare, define, drop, edit, erase, find, help, modify, plot, and print, for example.

There is no need for you to become a programmer to use VAX DATATRIEVE. You can learn how to use it as you use it.

Domains

Domains represent a relationship between physical data and descriptions of data. Through Domains VAX DATATRIEVE performs all of the data management associated with your data.

You don't have to be concerned about how the data is formatted in a record. VAX DATATRIEVE keeps track of that information for you.

Data Management

Data management involves creating and maintaining data in a current and correct state by adding, eliminating, and modifying records. The store, erase, and modify statements are used to perform these tasks.

You don't have to acquire programming skills to update database information and you don't have to hire expensive programmers to develop specific applications.

• VAX Terminal Data Management System

VAX TDMS Terminal Data Management System expands the traditional concept of videoscreen forms management to include control of all input and output. Form definitions and record definitions are associated by a new data structure called a request. VAX Terminal Data Management System screens, request, and data definitions are stored in the VAX Common Data Dictionary, where they can be shared across many applications, eliminating redundant record definitions and programming errors.

With VAX TDMS you can create forms by designing them on your terminal screen—what you see is what you get. You don't need special charts or a special forms design language. After you have created a form you can modify it at any time without having to make complicated changes in your program code. You can also change your programs without having to modify your forms.

Typical VAX TDMS applications range from database inquiry and update to the periodic display of the status of an industrial process. With it, forms can be created to help clerical personnel enter data at their terminals easily. Menus for data entry or selection of different program options are other applications that can benefit from VAX TDMS.

Lower Programming Costs

Definitions for how data is to be exchanged between an application program and the terminal screen is all taken care of by VAX TDMS. It also handles all of the screen mapping and data type conversions.

The programmer's job has been simplified. VAX TDMS eliminates much of the code programmers had to write for every program in the past.

Data Independence

Programs taking advantage of VAX TDMS execute a series of requests and then transfer information to or from a database. The request takes care of connecting the data from the screen to the application. The primary function of the program now becomes a way to access a database and a way to handle errors so that your data does not become corrupted.

Applications can be made simpler and modular. Programmers spend much less time defining data in their programs.

Device Independence

VAX TDMS takes care of handling the different types of terminal screens. Programmers don't have to worry about what type of screen or terminal is on each user's desk. VAX TDMS does that for them.

Applications can be run from any Digital video terminal on your system. VAX TDMS takes care of any differences between them, so programmers don't have to.

Reduced Maintenance Costs

Interactive, screen-based applications typically involve many data-program interdependencies. Once a system is developed, a small change to the layout on a screen or a data record can mean a lot of time and money spent changing program logic and system design. VAX TDMS allows programmers to develop modular applications, screen definitions, data descriptions, and request definitions. Individual pieces can be changed without necessarily changing any of the others.

A system can be changed easily to meet the changing needs of the users, and applications can be enhanced to meet changing business needs.

Improved Management Control

Because VAX TDMS encourages a modular approach to designing applications, programmers can segment applications into programming tasks. So personnel resources can be allocated more effectively and progress monitored easily.

Many senior programmers are not needed to develop sophisticated applications. Most VAX TDMS programming skills can be learned quickly by junior people.

Interactive Screen Definition

Programmers create the forms they want to use on their own video terminals. They work with a screen editor to create and modify a form until they're satisfied with the way it looks. When they are through designing or modifying the form, it is stored in the VAX Common Data Dictionary.

By seeing the actual form as created, valuable development time is saved. Forms can also be designed by end users instead of programming staff.

VAX TDMS is an Integral Component of the VAX Information Architecture

All of the forms, requests and data definitions are stored in the VAX Common Data Dictionary. VAX TDMS can also use the standard Record Management Services, Database Management System, and DATATRIEVE data definitions.

The definitions created by VAX TDMS can be shared across many applications, eliminating redundant definitions and programming errors.

• VAX Forms Management System

VAX Forms Management System (FMS) is a general purpose forms management system that provides a flexible way for interactive applications to talk to users on Digital video workstations. While source data entry and inquiry/response/up-date are the most obvious types of forms-oriented uses, other types of programs can benefit as well.

The ALL-IN-1 User Interface for example, was created using VAX Forms Management System. It allows you to customize the interface of your systems in a way that is practical for your job or pleasing to your environment. Almost any application that uses video terminals can be enhanced by using FMS forms to talk to terminal users.

Uses Advanced VT100 and VT220 Terminal Characteristics

VAX FMS uses many of the VT100 and VT220 video terminal features, including reverse video, bold, blink, underlining of characters, split screen, and scrolling capabilities.

Video screens can be formatted to make you more efficient when entering or viewing data.

Help

A help facility is available for forms as well as for fields within forms to provide on-the-spot assistance.

You benefit by being able to ask for assistance whenever you need it.

Field Protection and Validation

Extensive field protection and validation features ensure the integrity of data returned to the application program.

Information is checked when you enter it into a form, not after it has been sent to the application for processing. This limits the amount of time spent re-entering data to just a single field.

Validation of entered data is done by FMS so that your programmers don't have to spend valuable time writing validation code into their applications.

Interactive Forms Creation

Forms can be designed directly and interactively on the video screen, eliminating the need to lay the form out on paper, code the form language statements, compile, debug, enter corrections, and so on.

You see what you're creating. When the form meets your visual requirements, the job is done.

Independent Forms Storage

Forms are designed and stored independently of the application program.

If the information on a form must be changed and that form is used with many applications, you need only to change one form and all of your applications will be updated.

Terminal Forms Driver

The forms driver handles both field- and record-level I/O calls and flexible manipulation of scrolled regions of the screen.

Your programs written using VAX FMS don't have to include screen and data manipulation code, the forms driver takes care of it all.

Can Be Used With Many Languages

The VAX Forms Management System Supports the following languages:

VAX BASIC, VAX BLISS-32, VAX C, VAX COBOL, VAX FORTRAN, VAX PASCAL, VAX PL/1, and VAX DATATRIEVE.

Applications can be written in any of the preceding languages and share a common set of forms. Your programmers benefit by being able to write their programs in a language that best meets a problem definition.

• VAX Application Control Management System (ACMS)

VAX Application Control Management System (ACMS) provides tools for developing and controlling complex transaction processing applications. These tools reduce the amount of time spent developing and maintaining applications. It does this by replacing large amounts of control and application code with definitions stored in the VAX Common Data Dictionary.

The VAX Application Control Management System consists of two parts. It has an application development tool that can help you design, develop, and maintain your applications, and another part that creates the environment in which to run these applications. The VAX Application Control Management System is also an integral part of the VAX Information Architecture. It uses the VAX Common Data Dictionary to store definitions and the VAX Terminal Data Management System for menu processing.

Tools for Application Programming

Two tools, provided with the VAX Application Control Management System, assist with program development; they are a debugging utility and a system service utility. They provide the application programmer with a way to check out tasks before an entire application is complete.

When you start using new applications assigned to your workstation, those applications will have fewer bugs in them because your programming staff can exercise and debug them before they are complete.

Individual parts of a very large application can be checked out easily. This allows more time to be spent developing new applications instead of chasing problems.

User Definition Utility

You can define who can log into an Application Control Management System and what menus they will see.

Only those authorized users can gain access to your applications. Once users gain access, they are allowed to use only those menus that apply to their jobs.

VAX ACMS controls the security of your files and applications. This saves your programmers time when writing applications, because they don't have to include code to handle security issues.

Device Definition Utility

You can define which terminals can access your VAX Application Control Management System applications.

You probably wouldn't want someone in your shipping area accessing your payroll information. VAX ACMS can control which terminals have access to your system and what they can see.

Operator Facilities

A full set of operator commands is included with VAX Application Control Management System. These commands allow your operators to start or stop applications; cancel tasks; enable or disable an audit trail facility; and display information about tasks, applications, users, and system components.

This gives you full control of your system. You can make changes when they are needed and monitor system activity. The major benefit is that you don't have to run your system and find out about problems after they happen.

Interactive Access to DATATRIEVE and VMS Commands

The VAX Application Control Management System not only can help you implement highly structured, well-defined transaction processing applications, it also can provide you with ad hoc interactive access to DATATRIEVE and VMS commands for decision support and system utilities.

You have the widest range of system services available to you from one workstation. Tactical and operational information supported by your Application Control Management System is immediately available, along with access to strategic support information available elsewhere on your system(s).

• VAX Record Management Services

The VAX Record Management Services (RMS) facility, the standard Digital data management services software, provides an interface at the application-program level to record/file management functions. VAX RMS facilitates the definition, creation, population, access, and general maintenance and man-

agement of files and records within files. It supports sequential, relative, and multikey indexed-sequential file organizations, on both local systems and remote systems across a DECnet network.

Data Access Transparency

VAX Record Management Services gives you a wide range of file management techniques while keeping transparent the physical location of your data on a storage device or another system in a network.

You don't have to spend valuable time learning programming techniques just to access your data. Your programmers can write programs easily that can take advantage of storage-device independence as well as distributed information processing.

Standard Part of VMS

VAX Record Management Services is included as a standard part of all VAX/VMS systems.

Programs written on one VAX/VMS system are easily transported to any other VAX/VMS system.

• VAX Database Management System (DBMS)

The VAX DBMS Database Management System (DBMS) is a CODASYL-compliant general purpose database management system based on the March 1981 Working Document of the ANSI Data Definition Language Committee.

VAX DBMS provides multiple-user support with data security, integrity, and performance features that are required for your large-scale database applications that *run your business*. However, the VAX Database Management System is also easy to use, so it's equally suitable for implementing small-and medium-scale applications.

Multiuser Support and Concurrency Control

The VAX Database Management System keeps track of any number of users trying to access the same data and automatically controls the access.

Your programmers don't have to worry about two or more users trying to access a single file at the same time. Their programs can be simpler and more efficient because the system takes care of file contention.

Transaction Backout

When information is entered into the system, it is not put into your database directly. Instead it's stored in a buffer until the system determines if the data is valid. If your terminal drops offline while you're entering information, the system doesn't put the data you were working on into your database.

Your database information will not be corrupted by hardware failures or invalid data. The VAX Database Management System verifies new data before your database is updated.

Journaling and Recovery

The VAX Database Management System can optionally keep record-level journals.

In case of a system or program malfunction VAX DBMS can restore your database using a backup copy of your database and the journal files kept on your system. In this way your database can be restored to its state just before the malfunction occurred.

Multiple Databases

More than one database can be online at the same time.

You also can have two or more databases with totally independent data available on your system at the same time.

Performance Optimization

The VAX Database Management System uses optimized access methods to take advantage of the VAX/VMS system design.

Your programmers will spend much less time trying to optimize their programs when the system takes care of it automatically.

Data Security

The VAX Database Management System provides many levels of security for your data. First, it uses the standard security features of the VAX/VMS system. Second, it uses standard CODASYL security methods. Third, it protects the data definitions stored in the VAX Common Data Dictionary.

You don't have to worry about unauthorized access to your valuable information. You have full control over who can access it.

• **Rdb/VMS Relational Database**

Effective data management depends on several factors, including the size, number, and complexity of your data files, your system's capacity, operations performed, and the number of users. The database management system you choose must be suitable for your applications. Rdb/VMS is a relational-model system that defines a set of logical relationships to model the data needs of your organization. It also incorporates the traditional database advantages like data independence, an interactive, multiuser environment, data integrity and security, and central administration. Rdb/VMS is easy to understand, provides a variety of data comparisons and combinations, and doesn't need a highly trained database administrator.

If, after you examine your database requirements, you find that your database structure needs to be accessible to your non-DP staff, if you change database structure frequently, or if you need flexible data relationships and don't want to tie up a highly trained administrator, then Rdb/VMS is ideal.

With Rdb/VMS you're able to create and maintain several relational model databases, store and retrieve data efficiently, and centralize all data definitions in the VAX Common Data Dictionary (CDD).

Comprehensible to Nonprogrammers

Staff members without knowledge or experience in database management systems can understand data organization in Rdb/VMS because it uses a relational method. Data is organized into easy-to-understand tables, so implementation is quick for simple applications. However, Rdb/VMS is sophisticated enough to handle the most complex applications efficiently.

Easy Interactive Restructuring

You can add or delete indices, fields, and relationships to your database as your needs change. You can build prototype systems without committing extensive resources, so you save valuable time and manpower.

Flexible Data Relationships

Because Rdb/VMS forms relationships between data on the basis of values stored in the database rather than on predefined data structures, you can dynamically define relationships during database query.

No Need for a Professional Database Administrator

A programmer with only rudimentary training in database administration can set up a VAX Rdb/VMS database. The Programmer can translate a logical database design into a working database with a simple set of statements, either typed at the terminal or entered in a command file. Maintenance is also simple: backing up and restoring, analyzing space use, checking database integrity, and maintaining journal files are handled by a brief set of statements.

Information Management

Product Specifications and Ordering Information

VAX Rdb/VMS	2-69
VAX DBMS	2-73
VAX ACMS	2-76
VAX FMS	2-78
VAX TDMS	2-81
VAX DATATRIEVE	2-83
VAX Common Data Dictionary	2-86

• VAX Rdb/VMS Relational Database Management System

VAX Rdb/VMS

Minimum Hardware Required

• For MicroVAX Systems

• A minimum of two megabytes of memory	
• One RX50 disk drive for installation of the software	
• Mass storage units to dump and reload established databases	
• Block space requirements (Block Cluster Size = 1)	
Required for initial installation	
Development option	10,000 Blocks
Run-time only option	7000 Blocks
Remote application option	150 Blocks
Required for execution	
Development option	6000 Blocks
Run-time only option	4000 Blocks
Remote application option	150 Blocks

• For VAX-11/725 Systems

• A minimum of two megabytes of memory	
• One RC25 disk drive for installation of the software	
• Mass storage units to dump and reload established databases	
• Block space requirements (Block Cluster Size = 1)	
Required for initial installation	
Development option	10,000 Blocks
Run-time only option	7000 Blocks
Remote application option	150 Blocks
Required for execution	
Development option	6000 Blocks
Run-time only option	4000 Blocks
Remote application option	150 Blocks

• For VAX-11/730 Systems

• A minimum of four megabytes of memory	
• One RL02 disk drive or one RA60 disk drive for installation of the software	
• Mass storage units to dump and reload established databases	

- Block space requirements (Block Cluster Size = 1)

Required for initial installation	
Development option	10,000 Blocks
Run-time only option	7000 Blocks
Remote application option	150 Blocks
Required for execution	
Development option	6000 Blocks
Run-time only option	4000 Blocks
Remote application option	150 Blocks

- *For VAX-11/750 Systems*

- ECO level 3 or later

- A minimum of four megabytes of memory

- One RL02 disk drive, one RK07 disk drive, one RA60 disk drive or one 9-track 1600 BPI magnetic tape unit for installation of the software

- Mass storage units to dump and reload established databases

- Block space requirements (Block Cluster Size = 1)

Required for initial installation	
Development option	10,000 Blocks
Run-time only option	7000 Blocks
Remote application option	150 Blocks
Required for execution	
Development option	6000 Blocks
Run-time only option	4000 Blocks
Remote application option	150 Blocks

- *For VAX-11/780 or VAX-11/782*

- ECO REV 4 or later (VAX-11/780)

- A minimum of four megabytes of memory

- One RK07 disk drive, one RA60 disk drive, or one 9-track 1600 BPI magnetic tape unit for installation of the software

- Mass storage units to dump and reload established databases

- WCS microcode version 123 or later

▪ Block space requirements (Block Cluster Size = 1)	
Required for initial installation	
Development option	10,000 Blocks
Run-time only option	7000 Blocks
Remote application option	150 Blocks
Required for execution	
Development option	6000 Blocks
Run-time only option	4000 Blocks
Remote application option	150 Blocks

Optional Hardware

- None

Prerequisite Software

- VAX CDD
- VAX COBOL
- VAX DATATRIEVE
- VAX BASICVAX PASCAL
- VAX PL/1VAX C
- VAX BLISSVAX FORTRAN
- VAX DIBOL

▪ VAX Rdb/VMS

Ordering Information

Options	Systems	
	Micro VAX I	VAX 11/725
VAX Rdb/VMS Development System Options		
License Options: Required for each CPU		
Single-Use License	QN354-UZ	QC354-UZ
VAXcluster License		
Materials and Service Options:		
Distribution and Documentation Option	QN354-H3	QC354-H4
Software Revision Right to copy	QN354-HZ	QC354-HZ
Documentation Only Option	QX354-GZ	QX354-GZ

• VAX Rdb/VMS

Ordering Information (cont'd.)

Options	Systems		
	VAX 11/730	VAX 11/750	VAX 11/780 11/782
VAX Rdb/VMS Run-Time Only Option			
License Options: Required for each CPU			
Single-Use License		QN355-DZ	QC355-DZ
VAXcluster License			
VAX Rdb/VMS Remote Application Option			
License Options: Required for each CPU			
Single-Use License		QN357-DZ	QC357-DZ
VAXcluster License			
VAX Rdb/VMS Development System Options			
License Options: Required for each CPU			
Single-Use License	QC354-UZ	QD354-UZ	QE354-UZ
VAXcluster License		QD354-QZ	QE354-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC354-HH	QD354-HH	QE354-HM
	QC354-HM	QD354-HM	QE354-HV
	QC354-HJ	QD354-HV	QE354-HJ
		QD354-HJ	
Software Revision Right to copy	QC354-HZ	QD354-HZ	QE354-HZ
Documentation Only Option	QX354-GZ	QX354-GZ	QX354-GZ
VAX Rdb/VMS Run-Time Only Option			
License Options: Required for each CPU			
Single-Use License	QC355-DZ	QD355-DZ	QE355-DZ
VAXcluster License		QD355-QZ	QE355-QZ
VAX Rdb/VMS Remote Application Option			
License Options: Required for each CPU			
Single-Use License	QC357-DZ	QD357-DZ	QE357-DZ
VAXcluster License		QD357-QZ	QE357-QZ

• VAX DBMS Database Management System

Minimum Hardware Required

Any valid VAX-11/780 system at ECO REV 4 or later, or any valid VAX-11/782 system with

- A minimum of one megabyte of memory
- One RK07 disk drive or one 9-track 1600 BPI magnetic tape for installation of the software
- Mass storage with a minimum of 17,000 disk blocks for VAX DBMS system software and sufficient space for database storage areas
- Magnetic tape or disk units to dump and reload user-established database storage areas
- WCS microcode version 123 or later

• For VAX-11/750 Systems

Any valid VAX-11/750 system at FCO level 3 or later with

- A minimum of one megabyte of memory
- One RK07 disk drive or one 9-track 1600 BPI magnetic tape unit for installation of the software
- Mass storage with a minimum of 17,000 disk blocks for VAX DBMS system software and sufficient space for database storage areas
- Magnetic tape or disk units to dump and reload user-established database storage areas

• For VAX-11/730 Systems

Any valid VAX-11/730 system with

- An R80/RL02 configuration
- A minimum of one megabyte of memory
- One RL02 disk drive for installation of the software
- Mass storage with a minimum of 17,000 disk blocks for VAX DBMS system software and sufficient space for data base storage areas
- Magnetic tape or disk units to dump and reload user-established data base storage areas.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System
- VAX Common Data Dictionary

Optional Software

- VAX BASIC
- VAX BLISS-32
- VAX C
- VAX COBOL
- VAX DATATRIEVE
- VAX DIBOL
- VAX FORTRAN
- VAX PASCAL
- VAX PL/1

Training Credits

THREE (3)—Training Credits apply only to options that include support services. Consult the latest Educational Services Catalog at your local DIGITAL, office for the available courses, course requirements, and guidelines

Software Installation

Digital Installed

- **VAX DBMS**

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC899-UZ	QD899-UZ	QE899-UZ
VAXcluster License		QD899-QZ	QE899-QZ

VAXcluster License for Run-Time Only		QD915-QZ	QE915-QZ
Single-Use License for Run-Time Only	QC915-DZ	QD915-DZ	QE915-DZ
Materials and Service Options:			
Distribution and Documentation Option	QC899-HH QC899-HJ	QD899-HH QD899-HJ QD899-HM QD899-HV	QE899-HJ QE899-HM QE899-HV
Software Revision Right-To-Copy Option	QC899-HZ	QD899-HZ	QE899-HZ
Software Revision Right-To-Copy Option for Run-Time Only	QC915-HZ	QD915-HZ	QE915-HZ
Documentation Only Option	QC899-GZ	QC899-GZ	QE899-GZ
Documentation Only Option for Run-Time Only	QC915-GZ	QC915-GZ	QE915-GZ
Installation Service Option	QC899-IH QC899-IJ	QD899-IH QD899-IJ QD899-IM QD899-IV	QE899-IJ QE899-IM QE899-IV
Software Product Service Agreements:			
DECsupport Service	QC899-9H QC899-9J	QD899-9H QD899-9J QD899-9M QD899-9V	QE899-9J QE899-9M QE899-9V
Basic Service	QC899-8H QC899-8J	QD899-8H QD899-8J QD899-8M QD899-8V	QE899-8J QE899-8M QE899-8V
Self-Maintenance Service	QC899-3H QC899-3J	QD899-3H QD899-3J QD899-3M QD899-3V	QE899-3J QE899-3M QE899-3V

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC899-HH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge

J = RA60 Disk Cartridge

M = 9-track 1600 BPI Magtape (PE)

V = RK07 Disk Cartridge

Z = No hardware dependency

• VAX ACMS (Applications Control and Management System)

Minimum Hardware Required

Any valid VAX/VMS system configuration with:

- At least 2 megabytes of memory
- One of the following terminals supported by VAX TDMS:
 - VT100, VT100 with AVO, VT101, VT102, or VT125
 - VT52 (for application execution only)
 - PC100, PC278, PC325, PC350, or VT131, in VT102 compatibility mode
- Mass storage with a minimum of 21,500 (peak usage during installation) disk blocks for VAX ACMS system software.

For VAX-11/780 and VAX-11/782 Systems:

- One RK07 or RA60 disk drive or one 9-track 1600 BPI magnetic tape unit for installation of the software.

For VAX-11/750 Systems:

- An RA60 disk drive or an RL02/R80 configuration for installation of the software.

Optional Hardware

- Additional terminals, of the type listed above (number dependent on application load).

Prerequisite Software

- VAX/VMS Operating System
- VAX Common Data Dictionary
- VAX Terminal Data Management System

Optional Software

- VAX DATATRIEVE
- VAX DBMS
- VAX ACMS/AD

Training Credits

- None

Software Installation

• Customer Installed

• VAX ACMS

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC079-UZ	QD079-UZ	QE079-UZ
VAXcluster License		QD079-QZ	QE079-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC079-HH	QD079-HH	QE079-HJ
	QC079-HJ	QD079-HJ	QE079-HM
		QD079-HM	QE079-HV
		QD079-HV	
Software Revision Right-To-Copy Option	QC079-HZ	QD079-HZ	QE079-HZ
Documentation Only Option	QC079-GZ	QD079-GZ	QE079-GZ
Installation Service Option	QC079-IH	QC079-IH	QE079-IJ
	QC079-IJ	QD079-IJ	QE079-IM
		QD079-IM	QE079-IV
		QD079-IV	
Software Product Service Agreements:			
DECsupport Service	QC079-9H	QD079-9H	QE079-9J
	QC079-9J	QD079-9J	QE079-9M
		QD079-9M	QE079-9V
		QD079-9V	
Basic Service	QC079-8H	QD079-8H	QE079-8J
	QC079-8J	QD079-8J	QE079-8M
		QD079-8M	QE079-8V
		QD079-8V	
Self-Maintenance Service	QC079-3H	QD079-3H	QE079-3J
	QC079-3J	QD079-3J	QE079-3M
		QD079-3M	QE079-3V
		QD079-3V	

• VAX FMS

Minimum Hardware Required

Any valid VAX/VMS system configuration except the VAX-11/730 with A VT100 or VT100-compatible terminal is required for the creation of forms with the interactive form editing facility. Forms can be created on any terminal with the Form Language. The form test facility and application programs that use FMS can execute on both VT52 and VT100-compatible terminals.

Terminal	For Application Execution	For Form Development
VT100	Y	Y
VT100 with AVO	Y	Y
VT52	Y	Fig Only*
VT125	Y	Y
VT101	Y	Y
VT102	Y	Y
VT103	Y	Y
VT131	Y	Y
VT180	Y	Y
VK100 (VT52)	Y	Fig Only*
VK100 (ANSI)	See Note 1	See Note 1
PC100	See Note 2	See Note 2
PC350	See Note 2	See Note 2

Key: Y = Fully Supported (Forms can be created with the interactive form editing facility or with the Form Language on these terminals)

* = Forms can be created only with the Form Language on these terminals.

Note 1: Forms to be displayed on a VK100 cannot use the following VAX FMS features:

Wide forms (132 columns)
Bold video attribute

Note 2: PC100 and PC350 are supported in VT102 mode.

In addition, because the blinking and underline video characteristics on VK100 terminals are different from those on VT100 terminals are different from those on VT100 terminals the visual effects will differ.

Optional Hardware

Additional terminals as specified in the MINIMUM HARDWARE REQUIRED section.

Prerequisite Software

-
- VAX/VMS Operating System
 - One of the VAX FMS supported languages or VAX DSM is required for the development of application programs that use FMS.
-

Optional Software

-
- The VAX FMS Form Language Translator is available as optional software.
-

The following languages are supported with VAX FMS:

-
- VAX BASIC
 - VAX BLISS-32
 - VAX C
 - VAX COBOL
 - VAX FORTRAN
 - VAX PASCAL
 - VAX PL/I
 - and VAX DATATRIEVE
-

VAX DSM supports VAX FMS. Application programs that call VAX DBMS through the Standard Call Interface can use VAX FMS. VAX CDD may be used in application programs that call VAX FMS. However, storage of form definitions in the CDD is not supported by VAX FMS.

Training Credits

-
- None
-

Software Installation

-
- Customer Installed
-

• VAX FMS Ordering Information

Options	Systems		
(Q*800-UZ is a prerequisite)	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License for Form Language Translator only	QC802-UZ	QD802-UZ	QE802-UZ
VAXcluster License		QD802-QZ	QE802-QZ
Materials and Service Options:			
Distribution and Docu- mentation Option	QC802-HG	QD802-HG	QE802-HY
Software Revision Right- To-Copy Option	QC802-HZ	QD802-HZ	QE802-HZ
Installation Service Option	QC802-IG	QC802-IG	QE802-IY
Software Product Service Agreements:			
DECsupport Service	QC802-9G	QD802-9G	QE802-9Y
Basic Service	QC802-8G	QD802-8G	QE802-8Y
Self-Maintenance Service	QC802-3G	QD802-3G	QE802-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC802-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX TDMS (Terminal Data Management System)

Minimum Hardware Required

Any valid VAX/VMS Operating System configuration with:

- At least 1 megabyte of memory
- One of the following terminals:

VT100, VT100 with AVO, VT101, VT102, or VT125 (forms can be created with the interactive Form Definition Utility)

VT52 (for application execution only)

PC100, PC278, PC325, PC350 and VT131 Supported in VT102 compatibility mode

NOTE

Runtime support for the VT52 is generally the same as the VT100. When a VT100-specific feature is requested in a form definition, that feature will be either simulated or ignored when the form is displayed on a VT52.

Forms using scrolled areas and 132 column forms cannot be used on a VT52.

- Mass storage with a minimum of 12,500 disk blocks (peak usage during installation) for VAX TDMS system software

• For VAX-11/750, VAX-11/780, and VAX-11/782 Systems:

- One RK07 or RL02 disk drive or one 9-track 1600 BPI magnetic tape unit for installation of the software

• For VAX-11/730 Systems:

- An RL02/R80 configuration for installation of the software

Optional Hardware

- Additional supported terminals (number dependent on application load).

Prerequisite Software

- VAX/VMS Operating System
- VAX Common Data Dictionary

Optional Software

- VAX DATATRIEVE
- VAX DBMS

Software Installation

- Customer Installed

▪ **VAX TDMS****Ordering Information**

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC706-UZ	QD706-UZ	QE706-UZ
VAXcluster License		QD706-QZ	QE706-QZ
VAXcluster License for Migration from VAX FMS		QD713-QZ	QE713-QZ
VAXcluster License VAX TDMS image		QD711-QZ	QE711-QZ
Migration Option from VAX FMS	QC713-UZ	QD713-UZ	QE713-UZ
Single-Use License for VAX TDMS image	QC711-DZ	QD711-DZ	QE711-DZ
Materials and Service Options:			
Distribution and Docu- mentation Option	QC706-HH	QD706-HH QD706-HM QD706-HV	QE706-HM QE706-HV
Software Revision Right- To-Copy Option	QC706-HZ	QD706-HZ	QE706-HZ
Software Revision Right- To-Copy for VAX TDMS image	QC711-HZ	QD711-HZ	QE711-HZ
Documentation Only Option	QC706-GZ	QD706-GZ	QE706-GZ
Installation Service Option	QC706-IH	QD706-IH QD706-IM QD706-IV	QE706-IM QE706-IV

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
Software Product Service Agreements:			
DECsupport Service	QC706-9H	QD706-9H QD706-9M QD706-9V	QE706-9M QE706-9V
Basic Service	QC706-8H	QD706-8H QD706-8M QD706-8V	QE706-8M QE706-8V
Self-Maintenance Service	QC706-3H	QD706-3H QD706-3M QD706-3V	QE706-3M QE706-3V

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC706-IH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge

V = RK07 Disk Cartridge

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

Note: The above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

• VAX DATATRIEVE

Minimum Hardware Required

Any valid VAX/VMS system configuration with

- A minimum of 1MB of memory
- Mass storage with a minimum of 9000 disk blocks for VAX DATATRIEVE system software

• VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- Any device supported by the prerequisite software
- VT125 for graphics

Prerequisite Software

- VAX/VMS Operating System
- VAX Common Data Dictionary

Optional Software

- VAX DBMS
- VAX FMS
- DECnet-VAX
- VAX TDMS

Training Credits

- None

Software Installation

- Customer Installed

VAX DATATRIEVE

Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC898-UZ	QD898-UZ	QE898-UZ
VAXcluster License		QD898-QZ	QE898-QZ
Migration Option from PDP-11 DATATRIEVE/VAX	QC910-UZ	QD910-UZ	QE910-UZ
Materials and Service Options:			
Distribution and Docu- mentation Option	QC898-HH	QD898-HH	QE898-HJ
	QC898-HJ	QD898-HJ	QE898-HM
		QD898-HM	QE898-HV
		QD898-HV	
Software Revision Right- To-Copy Option	QC898-HZ	QD898-HZ	QE898-HZ
Documentation Only Option	QC898-GZ	QD898-GZ	QE898-GZ
Installation Service Option	QC898-IH	QD898-IH	QE898-IJ
	QC898-IJ	QD898-IJ	QE898-IM
		QD898-IM	QE898-IV
		QD898-IV	

Options	System		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
Software Product Service Agreements:			
DECsupport Service	QC898-9H	QD898-9H	QE898-9J
	QC898-9J	QD898-9J	QE898-9M
		QD898-9M	QE898-9V
		QD898-9V	
Basic Service	QC898-8H	QD898-8H	QE898-8J
	QC898-8J	QD898-8J	QE898-8M
		QD898-8M	QE898-8V
		QD898-8V	
Self-Maintenance Service	QC898-3H	QD898-3H	QE898-3J
	QC898-3J	QD898-3J	QE898-3M
		QD898-3M	QE898-3V
		QD898-3V	

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC898-HH = binaries on RL02 Disk Cartridge.

H = RL02 Disk Cartridge

V = RK07 Disk Cartridge

J = RA60 Disk Cartridge

Z = No hardware dependency

M = 9-track 1600 BPI Magtape (PE)

Note: The above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

• VAX Common Data Dictionary

Minimum Hardware Required

Any valid VAX/VMS system configuration with

- At least 1MB of main memory
- Mass storage with a minimum of 5000 disk blocks available during the installation process for VAX CDD system software and a minimum of 1300 disk blocks available following installation

• VAX-11/730 Systems

- An R80/RL02 configuration is required for 11/730 systems

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- VAX BASIC
- VAX COBOL
- VAX DATATRIEVE
- VAX DBMS

Training Credits

- None

Software Installation

- Customer Installed

• VAX Common Data Dictionary Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC897-UZ	QD897-UZ	QE897-UZ
VAXcluster License		QD897-QZ	QE897-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC897-HG	QD897-HG	QE897-HY
Software Revision Right-To-Copy Option	QC897-HZ	QD897-HZ	QE897-HZ
Documentation Only Option	QC897-GZ	QD897-GZ	QE897-GZ
Installation Service Option	QC897-IG	QD897-IG	QE897-IY
Software Product Service Agreements:			
DECsupport Service	QC897-9G	QD897-9G	QE897-9Y
Basic Service	QC897-8G	QD897-8G	QE897-8Y
Self-Maintenance Service	QC897-3G	QD897-3G	QE897-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC897-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: The above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

the system. The system is designed to be flexible and adaptable to changing requirements. The system is designed to be scalable and to handle a large volume of data. The system is designed to be secure and to protect the data from unauthorized access.

The system is designed to be user-friendly and to provide a high level of performance. The system is designed to be reliable and to provide a high level of availability. The system is designed to be cost-effective and to provide a high level of value for the money.

The system is designed to be easy to install and to maintain. The system is designed to be easy to use and to provide a high level of support. The system is designed to be easy to integrate with other systems and to provide a high level of interoperability.

The system is designed to be easy to upgrade and to provide a high level of flexibility. The system is designed to be easy to customize and to provide a high level of personalization. The system is designed to be easy to configure and to provide a high level of control.

The system is designed to be easy to manage and to provide a high level of oversight. The system is designed to be easy to monitor and to provide a high level of visibility. The system is designed to be easy to report and to provide a high level of transparency.

The system is designed to be easy to audit and to provide a high level of accountability. The system is designed to be easy to test and to provide a high level of confidence. The system is designed to be easy to validate and to provide a high level of assurance.

The system is designed to be easy to verify and to provide a high level of integrity. The system is designed to be easy to validate and to provide a high level of accuracy. The system is designed to be easy to verify and to provide a high level of precision.

The system is designed to be easy to verify and to provide a high level of consistency. The system is designed to be easy to verify and to provide a high level of reliability. The system is designed to be easy to verify and to provide a high level of stability.

The system is designed to be easy to verify and to provide a high level of security. The system is designed to be easy to verify and to provide a high level of protection. The system is designed to be easy to verify and to provide a high level of safety.

The system is designed to be easy to verify and to provide a high level of quality. The system is designed to be easy to verify and to provide a high level of excellence. The system is designed to be easy to verify and to provide a high level of achievement.

The system is designed to be easy to verify and to provide a high level of success. The system is designed to be easy to verify and to provide a high level of accomplishment. The system is designed to be easy to verify and to provide a high level of fulfillment.

Chapter 3 • Communications Capabilities



The terminal-at-every-desk philosophy of more and more business has created a demand for effective office networks and an explosion in office communications technology. Users are demanding access to systems, and to a wider variety of information that can be dispersed geographically.

The Digital Network Architecture products address a wide range of communications needs, from simple terminal connections to comprehensive multinode information systems. They also form the foundation of such departmental applications as electronic mail, document exchange, information processing, and decision support.

Digital's Network Architecture is a comprehensive set of communications products for office networks. These products are integrated to provide an unparalleled development and operating environment for today's office systems.

DECnet	Software Products to support the distributed office information network.
Internet Products	Products to support a multivendor environment and Digital's Open Systems Architecture. (These products are discussed under the headings Ethernet, Packetnet and Internet Software.)
Physical Connections	Products that connect the workstations in the office area to the systems in the computer room. (These products are discussed under the headings Ethernet and Communications Interfaces.)

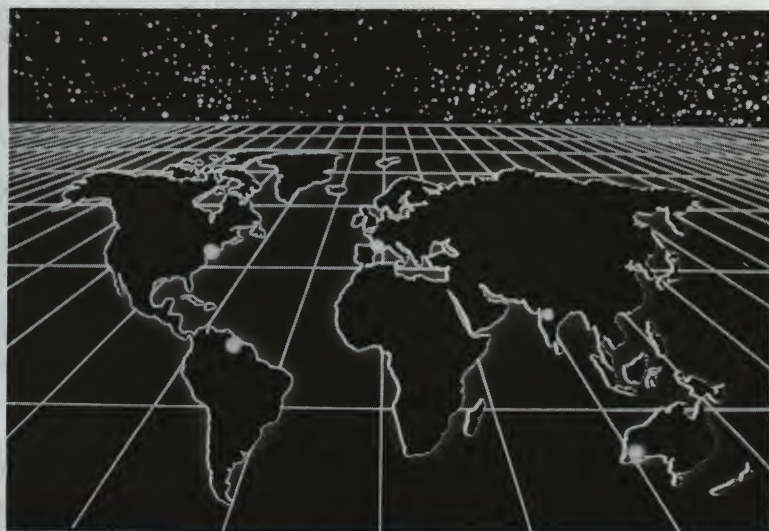
The Network Services Program is also available to help plan, design, implement, and maintain an office network, making Digital's Office Networks offerings complete in every detail.

• **Digital's Network Architecture**

The Digital Network Architecture (DNA) is more than a collection of communications software and hardware products. It can help you do more than merely transfer data between computers and peripheral devices. Modeled closely upon the International Standards Organization's Open System Interconnect, DNA will help you create an integrated networking system from your present array of distributed computer resources. At once flexible and easy to use, a DNA system can help you increase productivity, improve organizational efficiency, and reduce data processing costs through savings in equipment and operating personnel.

Digital was one of the first computer companies to develop a comprehensive set of compatible networking products to support an entire range of computer systems. Today, DNA DECnet software supports all of Digital's computer series'—Professional 300 Series personal computers, PDP-11 systems, VAX systems, and DECSYSTEM-10s and DECSYSTEM-20s—and all our major operating systems. This means that executives at personal computers, secretaries at word processors, and engineers at development workstations are not limited to the resources of their local computer systems. Instead, they have the resources of an extended networking system at their disposal to communicate with each other, to access central or distributed databases, and to share or transfer entire documents.

This section highlights Digital's Network Architecture and its capabilities; for more detail on any of the hardware and software products we have just discussed, please refer to the Office Networks Products Specifications section of this handbook.



Links to Other Vendors' Systems and Networks

Equally as important, Digital's networks can accommodate other vendors' computers. The days of the corporate computer room supplied by a single manufacturer are past, as both large and small organizations now buy different computer systems to match different needs and applications. When major commitments are made to deploy office information systems in your organization, the ability to connect all the pieces together is even more important.

Digital recognizes this trend and fully supports the concept of cooperative computing. The Digital Network Architecture offers links between Digital's systems and other manufacturers' computers. In the case of IBM, DNA lets you connect Digital networks with SNA or BSC (Binary Synchronous Communications) networks. This includes all systems, from personal computers to the largest mainframes. DNA can integrate whatever combination of realtime systems, timesharing systems, office and word processing systems, computational systems, and data processing systems you have.

Local Area and Public Packet-switched Networks

DNA can connect these systems in whatever configurations best suit your organizational and networking needs. Ethernet, for example, is one communications choice available within DNA. It provides low-cost, high-speed communication trunks among all departments of an organization, whether they are located on several floors of one building or are scattered throughout a complex of buildings. Our Packetnet interfaces are another choice. They extend your communications reach to include those public packet-switched networks in many countries around the world that are already using the X.25 protocol. Digital can provide all the communications hardware and software necessary to implement a networking system that handles both local and remote communications over public networks, leased or private lines, or via satellite links.

The sum of these parts is impressive. We have a network architecture that conforms to the ISO model, that provides high-level communications functions among computers of widely varying size, purpose, and make, and provides both local and remote links among networks, as well as among different computer systems.

Maximum Flexibility for Future Growth

Most important, DNA can help you manage open-ended growth. Only Digital provides a range of networking products and compatible operating systems comprehensive enough to satisfy communications needs as your systems grow. Our terminal servers, for example, let you attach nonintelligent terminals wherever they're needed on an Ethernet local area network. Intelligent terminals can also be added to the network when needed. As the number of attached terminals grows greater, DECnet Router Servers can relieve your computers of nonproductive routing work. When greater concentrations of terminals are needed, clusters of terminals can be attached through a single terminal server to the Ethernet channel, connecting them to all computers in the network.

Because DNA can connect all our major operating systems, computers and workstations can easily be added to your network as they are acquired throughout your organization. You can begin with a system of 2 nodes and grow to 200 or even 1,000 nodes encompassing a diversity of processors and applications. The addition of personal computers and increasingly intelligent terminals means that more and more network intelligence and application work can migrate from host-computer locations to the distributed locations where they're needed.

Similarly, various elements and capabilities of the Digital Network Architecture can be added as the need arises. You can, for instance, begin with point-to-point DECnet communications using dialup remote connections and progress to multipoint leased-line links as your network expands. With further growth, you may want to take advantage of DNA's X.25 protocol connections for low-cost long-distance communications. The Digital Network Architecture range of products provides even greater networking flexibility through microwave and satellite links. It will also adapt to other technologies, such as broadband or fiber optic links. All such changes and additions can be accomplished without disrupting the operation of your network.

Digital recognizes that networking technology itself is an area of dynamic growth. We will adapt to changes in international standards and include future technologies as compatible elements of the Digital Network Architecture. With DNA, your present applications and network investment will be enhanced, not eroded, by future developments.

• DECnet

DECnet networking software provides the high-level communications functions of the Digital Network Architecture. It's DECnet that enables people at terminals, workstations, or personal computers at any point in a Digital network, to log in and perform network functions with a single set of commands. They can do this regardless of whether their computers are linked by Ethernet, public packet-switched networks, or point-to-point connections. As a result, network users don't have to concern themselves with the mechanics of communications, only with the job at hand.

The same concern for network ease-of-use and flexibility underlies all the major features of DECnet. One of the most important of these is DECnet's virtual terminal capability. It lets users at terminals attached to Digital systems log onto other Digital systems in a network. Business professionals, data processing specialists, and clerical users all can make use of every one of your computer resources, not just the system to which they're directly connected.

Easy Access to Information Management Software

Using the VAX/VMS system and the ALL-IN-1 Office Menu's program development features, users at DECnet nodes and terminals can access data transparently anywhere in the network using information management tools. With tools like DATATRIEVE and the Forms Management System, they can create interactive solutions to specific tasks. Programmers taking advantage of the same virtual terminal capability can develop and execute programs on remote systems.

Programs, can, in fact, be developed far from the site where the program will be used, giving you maximum use of your computer resources and avoiding costly hardware and software duplication. People working with small applications-oriented systems can do their program development on larger, remotely located systems using a full range of editing and other program development tools. Conversely, programs also can be developed at a central location and downline-loaded to distributed computers at other locations.

In a university environment, for instance, there are almost always more potential users of computer resources among the students and faculty than there are systems to satisfy them. At the same time, it would be exorbitantly expensive to try to meet that demand by adding processors and peripherals to increase local processing power. With DECnet software, however, the instructional exercises of students at different locations can be forwarded to a central computer for processing. The faculty can communicate ideas about ongoing research and take advantage of the resources of a central computer center from workstations or terminals in their own departments.

Adaptive Routing and Network Management

DECnet's adaptive-routing capability makes DNA communications very flexible and easily available. Adaptive routing allows nonadjacent nodes to communicate and eliminates the need for direct physical links between all communicating nodes. Messages are routed automatically through a multi-system network over the most cost-effective path. Adaptive routing also ensures that if any line in the network is disabled, the data being transmitted will be rerouted automatically through another path in the network. All this happens transparently to the user.

In addition, with DECnet software a network manager can, from any terminal in the network, interactively monitor activity on all network nodes, access statistical and error information, and isolate hardware and software problems. Together, DECnet's transparent rerouting and network management features greatly enhance network flexibility, reliability, and ease of use. They also contribute to significant financial savings, since networks can be managed with a minimum of supervisory personnel, and the failure of one node won't disrupt the entire network.

Savings in Time, Effort, and Money

DECnet can produce corresponding savings in time, effort, and money at every level for an organization linked by a DNA network. The simple fact that all your organization's departments are connected with each other can reduce paperwork and speed communications immensely. The resources of more than one computer on the network might be needed to support both memory and design requirements for a given job while other systems may be needed for marketing analysis. DECnet software can let you access any system you need, through entirely transparent network links, and makes it easy to exchange information on the status of ongoing projects.

Documentation could take days to send through the mail to a branch office in another state or country, but with DECnet it can be transmitted much more quickly and efficiently. Alternatively, reference documents can be kept on the network, letting a group on one side of the country take advantage of time-zone differences by executing jobs on a computer on the other side of the country before or after working hours there. The same advantage applies between continents.

Similarly, DECnet can eliminate the time, expense, and inconvenience involved in transferring data between systems via magnetic tape. A company's division offices may, for instance, be individually responsible for local sales order, inventory, and distribution processing, but still be required periodically to update a central database. Magnetic tape, the traditional way of transferring data, takes a lot of system and operator time. DECnet software transfers files directly at the operator's request, without tape handling and the corresponding system time and operator effort involved.

With DECnet, there is no rigid network topology and no prerequisite host processor. You choose the processors you need and configure them to reflect your organizational structure. Nodes can be added or deleted without disrupting network functions, so your network can be expanded easily or reconfigured to meet changing requirements. Digital's Network Architecture enhances network flexibility and growth in virtually any direction you may need.

Ethernet

Digital's Ethernet is one method of handling high-speed local DECnet communications. It was designed specifically to answer your local area network requirements. The Ethernet coaxial cable lets you wire a building or a complex of buildings for high-speed local communications that can support all high-level DECnet functions. Ethernet is thus an integral part of the Digital Network Architecture, one that extends and intensifies DNA capabilities on a local level.

The rationale behind such a local network extension is simple. Because of rapid advances in microprocessor technology and the widespread acceptance of personal computers, organizations that only recently evolved from centralized mainframe computing to distributed departmental computing, will soon be able to justify putting a computer in every office and a terminal or personal computer on every desk. The complexity and expense of point-to-point physical connections among all such equipment would be overwhelming. Ethernet provides a common communications path by which systems and associated terminals attached by a single connection can communicate with all other attached nodes at speeds comparable to those on the bus that links devices within a single system.

Communications Across Organizational Boundaries

The resulting local area network can support information exchange within and among all levels and departments of your organization, from administration to engineering. Information that must be shared across organizational boundaries becomes available to all who need it. The same communication services can help managers monitor and coordinate the progress of a project. Scheduling and deadline information, for instance, can be transferred within a group or among different groups in the same way that technical data is exchanged by engineers—quickly and efficiently.

In fact, a local area network's impact on your office operations could be particularly dramatic. This is especially true when it is used in conjunction with Digital's Professional 300 Series personal computers and our ALL-IN-1 office products for electronic mail, word processing, and text management. An Ethernet local area network can give all the people in your office, from secretaries to executives, reliable access to the information-management tools and information they need, eliminating redundant hardware and software purchases.

Because Ethernet is simply a local extension of DECnet software capabilities, you can begin with an existing DECnet network and add Ethernet for local communications. DECnet application programs can be run without modification on Ethernet local area networks. A single Ethernet network can support up to a 1,000 nodes, but you can start with as few as you wish and add more as they're needed. Ethernet gives you the flexibility to add or remove nodes quickly and easily, without disrupting ongoing communications and without redesigning or reconfiguring your entire network.

Packetnet System Interfaces

While the Ethernet protocol can help you establish flexible and efficient local area networks, the X.25 communications protocol, also incorporated in the Digital Network Architecture, can help you reduce the cost of communications with remote systems and networks. The X.25 protocol is the international standard upon which various public packet-switched networks (PPSNs) are now based. In the United States, these are privately owned networks—Tymnet and GTE's Telenet are examples. In other countries they are owned and operated by the national telecommunications authorities.

Digital has already developed and implemented Packetnet system interfaces (PSIs) for use in many national networks in Europe and North America. Countries for which Digital's PSIs are currently available include the United States, Canada (Datapac), France (Transpac), the United Kingdom (PSS), Germany (DATEX-P), and Holland (DN1). We are committed to support other PPSNs (such as Switzerland's Telepac) as they become available to the user community, as well as private networks that use the X.25 protocol. Digital has extended the reach of the Digital Network Architecture across the country and around the world.

Low-cost Multivendor Communications

The major advantage of public packet-switched networks is savings. Leased telephone lines are prohibitively expensive for all but the most high-volume users because cost is based upon connect time and distance, regardless of how much or little data is transmitted. PPSNs, on the other hand, charge chiefly on the basis of volume of data sent. Tariff rates are relatively independent of distance. This makes them a much more cost-effective means of moving low-volume to medium-volume traffic throughout different branches of an organization or between different companies.

An additional advantage is that computers built by different vendors and operating at different input and output speeds can communicate over PPSNs. This allows potential users to choose from the different vendors whose equipment supports X.25. Large institutions can buy the computers best suited to each job and location.

You don't have to be concerned with how messages are actually sent over the networks to their correct destinations—that's the responsibility of the public carrier operating the PPSN. Still, it's important to realize that PPSNs only transfer data between various systems. Once data arrives at a destination over a PPSN, it's up to application software to translate that data and make it intelligible.

X.25 Plus High-Level DECnet Functions

Digital's Packetnet system interfaces do just that. They extend the high-level DECnet functions of DNA to Digital computers communicating across public packet-switched networks. Packetnet system interfaces are a cost-effective way to get data from system to system over X.25 networks. DECnet then gets the data to particular programs within systems to help solve application problems.

This could mean, for example, that an international bank's Digital systems in New York, Paris, and Los Angeles could access and update remote records and share and exchange programs as if they were connected locally. At smaller branches of the same bank, employees could use their interactive terminals and the X.3, X.28, or X.29 protocols to communicate with Digital systems in the main offices via PPSNs.

• Internet Software

Digital's Network Architecture encompasses a range of high-level networking functions, allows them to be implemented in high-speed local area networks, and provides low-cost worldwide communications via PPSNs. To complete the picture, Digital offers networking software products called Internets to link your mainframe computer with distributed Digital systems that capture, organize, retrieve, process, and exchange information.

Our Internet protocols enable Digital systems to be connected with mainframes from IBM, Control Data Corporation, and Sperry Univac and with other processors that use the same protocols. Digital's IBM Internets support batch or interactive environments as well as either Bisync or SNA, (IBM's System Network Architecture) protocols. Internet products give you the greatest possible opportunity to match different types of processors to different types of jobs without compromising your overall networking effort. This enhances and protects your current investment in computing resources.

Because Digital systems are frequently involved with distributed data processing and realtime application monitoring at a departmental or individual level, they provide complementary resources to centralized IBM mainframes, large databases, and batch processing applications. Cooperative computing between the Digital and IBM data processing environments allows you to access the corporate-based information needed for your personal, departmental, or divisional decision-making, to transmit local data to a corporate database, and to provide local access to applications available within your IBM Systems Network Architecture (SNA) network. For you, this means one easy-to-use, integrated network incorporating both Digital and IBM systems.

In a manufacturing environment, for example, Digital systems that maintain local parts inventories can update and request information from a central mainframe database via Digital's Interactive BISYNC 3271 or SNA protocol emulators. These same two Internet products also allow programs on Digital and IBM systems to work together interactively to solve applications problems. Development engineers engaged in transaction-oriented processing at test stands can forward data to a mainframe for further analysis and receive final results in return. Data from the shop floor in the same company can be collected by local Digital systems and held for periodic transmission to an IBM mainframe via our batch 2780, 3780, or HASP protocol emulators.

Network-to-Network Communications

Networking and distributed processing growth in the past decade has produced a need for cooperative computing that often exceeds the capabilities of single-function communications emulation. To answer that need Digital developed the DECnet/SNA Gateway. It links Digital and IBM network environments, rather than merely providing single-function communications emulation between two computers. And it frees you to expand either the SNA or the DNA side of your total distributed processing operation without jeopardizing your present hardware and software investment.

In effect, the DECnet/SNA Gateway extends the reach of your Digital network to include IBM systems connected by an SNA network, allowing you to take advantage of the complementary strengths of both environments. It does so by combining three essential translator functions (remote job entry, 3270 terminal emulation, and applications program interface) and network management software into a PDP-11 front-end processor that's attached as a DECnet node.

The Gateway enables you to access or update your IBM mainframe database, perform remote job entry tasks, and initiate program-to-program communication, without sacrificing the flexibility and ease-of-use of your Digital network. Like DECnet itself, the gateway functions are transparent to end-users. The gateway enables you to perform many tasks from Digital's workstations, as if they were integral parts of an SNA network, without giving up the unique advantages of your Digital systems.

Shared Information and Access

As part of our continuing commitment to the future of your business, Digital introduces the newest members of the DECnet/SNA product set: DECnet/SNA VMS DISOSS Document Exchange Facility (DDXF), DECnet/SNA VMS Distributed Host Command Facility (DHCF), and DECnet/SNA VMS Printer Emulator (PrE). Used with the DECnet/SNA Gateway, these software packages allow users of IBM systems to enjoy the benefits of Digital's systems. Previous Digital and IBM Internet products have focused on providing users of Digital systems access to IBM mainframes.

DECnet/SNA VMS DDXF allows VAX/VMS systems to exchange documents with an IBM host and office systems running in a DISOSS (Distributed Office Support System) environment (DISOSS is a key component of IBM's office automation software). This allows both Digital system users and IBM system users to participate in one common office network. DECnet/SNA VMS DDXF makes it easy to receive, edit, delete, and distribute documents within the DISOSS network.

DECnet/SNA VMS DHCF allows IBM 3270-class displays connected to an IBM host running the HCF (Host Command Facility) program product in an SNA network to access VAX/VMS systems, through the gateway. This lets the IBM network manager control both the IBM and Digital networks from an IBM display and allows IBM users to access their mail or develop programs on a VAX/VMS system.

DECnet/SNA VMS PrE allows bulk data transfer from an IBM system to a Digital system for printing. This means that instead of printing out a document at an inconveniently located IBM printer, either an IBM or Digital terminal user (in 3270 terminal emulator mode) can have the document printed at a conveniently located Digital printer attached to a local VAX/VMS system. Once on the VAX system, the document can also be stored or viewed on a display terminal.

Banks, insurance companies, or any large organization can use the DECnet/SNA Gateway as a means of maintaining direct contact between a widely distributed Digital network of systems at branch offices and a headquarters-based SNA network. Database access and file transfers among various systems within the two networks can be accomplished as if they were taking place within the Digital network alone. With the gateway, you can connect these two previously isolated, but clearly overlapping environments.

VAX BISYNC Terminal Support

Digital realizes that many of our customers have invested in bisync block-mode terminals, such as the IBM 3270s or the Teletype 4540s. With VAX BISYNC Terminal Support (BTS) these terminals now can access the office features on Digital's VAX/VMS office systems. If you own bisync terminals, have the need for an office automation package, require a system to offload mainframe applications, and the ability to communicate with a host system with just a few simple commands, or any combination of these features, then VAX/BISYNC Terminal Support is designed for you.

As part of block-mode terminal support, VAX BTS gives you three capabilities.

First, VAX BTS supports bisync terminals by making them look to the VMS operating system like printing terminals. This means that any utility or layered product that runs on a Digital printing terminal, like a DECwriter III or Letterwriter 100, will run on your bisync terminal—without any modifications.

Second, VAX BTS supports VAX Forms Management System (FMS) applications. VAX FMS checks forms to be sure that they can be displayed on bisync terminals as well as on Digital's video displays. You now can effectively use your bisync terminal to run these forms applications.

Third, through VAX BTS, your bisync terminal can access programs running on an IBM or IBM-compatible host. Data received from an IBM host is passed through to the bisync terminal and data from the terminal is passed through to the host. During normal operations pass-through operation is transparent to the terminal operator.

Putting It All Together

With the addition of DDXF, DHCF, and PrE, Digital provides a wide range of choices to best address the user who needs system cooperation in a Digital-IBM environment. For line protocols, the user can choose either bisync or SNA. For an operating environment, the user can choose batch or interactive or some combination of both.

One issue that is always of concern is terminal connectivity. A user doesn't want their terminal connected to one system where they do only a small amount of work each day and pass through that system to another host for most of the day. With DHCF and BTS, the user can connect their 3270 terminal to the host where they will do the most work. BTS permits the 3270 terminal to connect to the VAX computer and pass through to the IBM host. DHCF permits the terminal to connect to the IBM host and pass through to the VAX system. This choice supports making the best use of available resources. The VAX/VMS interface is the same to the 3270 user for either BTS or DHCF.

For data transfer, the batch environment is the most popular method. VAX 2780/3780 for bisync protocols and RJE in the SNA Gateway gives the user a choice to match a given situation. Where interactive transfers are desired both VAX 3271 P.E. and the SNA Gateway have an application interface to enable routines on both Digital and IBM systems to communicate.

• **Communications Interfaces**

The Digital Network Architecture supports a broad range of communications interfaces. Digital hardware products support all aspects of DNA synchronous, asynchronous, and local area communications. These include:

- Single-line devices
- Multipoint or point-to-point devices
- Character interrupt devices
- Multiline devices
- Parallel devices
- Modems

Digital also gives you all the hardware you need to install an Ethernet local area network, including physical cables, transceivers, and communications controllers for attaching VAX/VMS systems or RSX-based UNIBUS PDP-11 systems. In the future, we'll be expanding local area network capabilities with many more products. These will include physical-channel hardware, sophisticated communications servers for connecting local area Ethernets to other DECnet networks and to foreign networks, and controllers for our other system offerings, including personal computers and DECsystem-20 large computers.

The Digital Computer Special Systems (CSS) group can design custom hardware and software in answer to your specific communications requirements. Some CSS products of interest include statistical multiplexers, specialized high-speed communications controllers, including a microprocessor that offloads communication protocols from VAX systems, and high-speed parallel communications links.

• Networking Services

Digital networking software supports over 13,000 networked computer nodes in a variety of applications around the world. Our own engineering network encompasses more than 200 nodes and approximately 4,000 terminals in the United States, Europe, and Australia. Our order processing network is fast reaching the same size. This breadth of experience in network planning, implementation, and maintenance reaches you through our sales offices and through over 16,000 people in our customer service organizations.

Network Planning and Support

Digital's sales offices worldwide have network specialists who can help you with every stage of network development. To begin with, they can put together a network profile detailing your networking needs down to descriptions of each node, communications link, and application. The profile considers such questions as topological design, traffic prediction, applications analysis, and projected network growth, and establishes a network implementation schedule.

Another available service is our Customer Support Plan. It covers installation, start up, application development, training, network management, and troubleshooting and recommends supporting software and educational services. Digital Field Service and Software Support personnel will install the hardware and software needed at each node and demonstrate a working connection to all adjacent nodes.

While we can help you plan and implement your network, there's no substitute for knowledgeable people in your own organization. To that end, Digital's Educational Services offers a complete network training curriculum. It includes courses for all skill levels required to run a successful and efficient network system. There are basic concept courses such as Data Communications Fundamentals and Packet Switching Concepts; There are courses for network managers and for programmers; courses that teach a specific implementation of the Digital Network Architecture, such as DECnet RSX or DECnet VAX/VMS; and advanced courses for network designers that include the latest developments and trends in networks.

• Summary

For office networks, communications capabilities should be invisible to the end user. The capabilities must support the easy movement of information between workstations and other computing resources without being unnecessarily constrained by the corresponding vendor. Access to this information must also be easy to use and not vendor dependent. Office users don't want access to system x, they want access to the information on system x without having to know how to reach system x.

Digital's communications capabilities are the best in the industry today. Digital's products and services take the user from needs analysis, communications education, network design and analysis, performance measurement and tuning, to required products, installation, testing, training, and maintenance. And—it's all available today!

Communications Capabilities

Product Specifications and Ordering Information

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• Dual-Speed DF03 Modem Family

DF03

Specifications

General Application	DF03-AA/AC Serial, Binary Synchronous or Asynchronous Data	DF03-RA/RC Serial, Binary Synchronous or Asynchronous Data
Operating Mode	Full-Duplex Two-Wire	Full-Duplex Two-Wire
Data Rate	Low-Speed: 0 to 300 b/s (Async) High-Speed: 1,200 bps (Async) 1,200 bps (Sync) 1,200 bps	Low-Speed: 0 to 300 b/s (Async) High-Speed: 1,200 bps (Async) 1,200 bps (Sync) 1,200 bps
Telephone Line Requirement	Voice Grade PSTN Line with RJ11C Termination	Voice Grade PSTN Line with R121X Termination (Multiline)
Certified for FCC Part 68 (Direct Connection)	Yes	Yes
FCC Part 15	Verified for Category B (Home and Computer Environment)	Certified for Category A (Computer Environment)
Terminal Interface	EIA RS232-C/ CCITT V.24 & V.28 25-Pin Cinch Connector	EIA RS232-C/ CCITT V.24 & V.28 and EIA RS423-A (up to 200 feet) 25-Pin Cinch Connector
Operating Environment		
Temperature	5°C to 50°C (41°F to 122°F)	5°C to 50°C (41°F to 122°F)
Relative humidity	0% to 95% Noncondensing, Noncaustic	0% to 95% Noncondensing Noncaustic

Power requirement (nominal)	13.7 VA at 120V, 60Hz	84 VA at 1120V, 60Hz
Voltage protection	¼ Amp Fuse	2.5-Amp Breaker
Physical Characteristics		
Height	69 mm (2.5 in.)	203 mm (8 in.)
Width	143 mm (5.5 in.)	21.6 mm (.85 in.)
Depth	277 mm (10.9 in.)	264 mm (10.4 in.)
Weight	2.7 Kg (6 lb. approx.)	.7-.9 Kg (1.5-2.0 lb. approx.)
Test Features		
	ANL—Analog Loop Back	LL—Local Loop (Analog Loop Back)
	ST—Self Test	ST—Self Test
	RDL—Remote Digital Loop Back (Loop Back)	RL—Remote Loop (Remote Digital)
	DTL—Digital Loop Back	DL—Digital Loop Back
		RJ11C Telephone Line Test Jack
Operating Features		
	Data/Talk—Data/Talk Selection	Data/Talk—Data/Talk Selection
	HS—High/Low Speed Selection	HS—High/Low Speed Selection
Status Indicators		
	Carrier, Data Terminal Read, Data Set Ready	Send Data, Receive Data
	High Speed. Test Mode	Carrier, Data Terminal Ready, Data Set Ready (Modem Ready).
		Off Hook, High Speed. Test Mode

Modem Requirements	DF03-AA/AC	DF03-RA/RC
Low-speed modulation	Frequency-Shift Keying (FSK)	Frequency-Shift Keying (FSK)
High-speed modulation	Quarternary Differential Phase-Shift Keying (QDPSK)	Quarternary Differential Phase-Shift Keying (QDPSK)
Selectable	Loss of Carrier Disconnect -Send Space Disconnect -Long Space Disconnect -Async or Sync Operation	Loss of Carrier Disconnect -Send Space Disconnect -Long Space Disconnect -Async or Sync Operation
Autoanswer	-Autoanswer Mode -Interface Speed Indication/Selection -CAR, DSR, CTS Force On/Normal -Interface Control Mode Test—ANL	-Autoanswer Mode -Interface Speed Indication/Selection -CAR, DST, CTS Force On/Normal -Interface Control Mode Test—ANL
Auto dial	-Serial, Asynchronous Data Format -110, 300, or 1,200 bps (Fixed) -ASCII Character Set	-Serial, Asynchronous Data Format -110, 300 or 1,200 bps (Follows Modem Speed) -ASCII Character Set

• DF100-RM Multiple Modem Enclosure

DF100-RM Multiple Modem Enclosure

Specifications

Capacity	12 Individual Modem Modules
Telephone Line Requirement	Ability to connect to 12 telephone lines using any mixture of PSTN lines with RJ21X service or private/leased lines with four-position connector.
Operating Environment	
Temperature	5°C to 50°C (41°F to 122°F)
Relative humidity	0% to 95% noncondensing, noncaustic
Power requirement	84 VA at 120V, 60 Hz
Voltage protection	2.5-Amp Breaker
Mounting Requirement	Standard 19" Computer Cabinet or Rack
Physical Characteristics	
Height	267 mm (10.5 in.)
Width	483 mm (19.0 in.)
Depth	343 mm (13.5 in.)
Weight	12.25 kg (27 lb. without modules)

• DF03 and DF100

Ordering Information

DF03-AA/JK—	Modem—300/1200 bps, direct connect.
DF03-AC/JK—	DF03-AA, plus automatic originate (Auto-call).
DF03-RA/JK—	1200 bps, Rack Mountable modem.
DF03-RC/JK—	DF03-RA, plus automatic originate (Auto-call).
DF100-RM/JK—	Rack Mount Modem enclosure.
DF100-PR/JK—	Redundant Power Regulator Option.

• DMP11 Synchronous Line Controller

DMP11

Specifications

Performance Characteristics

Operating mode	Full- or half-duplex
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Data format	Synchronous DDCMP
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Data rates	
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DMP11-AA

EIA RS-232-C	19.2 kbits/s (max.)
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EIA RS-423-A/	56 kbits/s (max.)
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RS-449	19.2 kbits/s (max.)
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CCITT V.24/V.28	
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DMP11-AB

CCITT V.35 DDS/ISO	
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FDX	500 kbtis/s (max.)
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HDX	1 Mbit/s
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DMP11-AC

FDX	500 kbtis/s (max.)
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HDX	1 Mbit/s (max.)
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DMP11-AE

EIA RS-422-A/RS-449	
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FDX	500 kbits/s (max.)
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HDX	1 Mbit/s (max.)
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Tributaries supported	32 (max.)
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Compatible with	
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Multipoint	DMP11 controllers
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DMV11 controllers

Point-to-Point	DMR11 controllers
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DMC11 controllers

UNIBUS loading	
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Microprocessor module	1 UNIBUS dc load
	5 UNIBUS ac loads
Line Unit Module	no UNIBUS loads
Power Requirements	
dc power	
Microprocessor module	5V 5%, 12.0A
	15V 5%, .1A
	- 15V 5%, .2A
	5V 5%, 7.0A
Line Unit Module	5V 5%, 5.0A
	15V 5%, 0.1A
	- 15V 5%, 0.2A
Heat dissipation	160 btu/h (total)
Physical Size	
Microprocessor and line unit module	
Height (hex)	39.8 cm (15.7 in.)
Length (standard)	21.38 cm (8.42 in.)
Cable interface panel	height 12.7 cm (5.0 in.)
	length 16.66 cm (6.56 in.)
Integral modem panel	height 10.16 cm (4.0 in.)
	length 10.4 cm (4.1 in.)
Modem cables available	
BC05D	EIA RS-232-C
BC55N-98	Twinaxial (56 kbits/s require two cables for full duplex.)
BC55M-98	Triaxial (250 kbits/s and greater require two cables for full duplex.)
Operating Environment	
Temperature	5° to 50°C (41° to 122°F)
Relative humidity	10 to 90% (no condensation)

Wet bulb temperature	32°C (90°F) max.
Dew point temperature	2°C (36°F) min.
Altitude	sea level to 2.4 km (7,920 ft.)
Shipping* temperature	- 40° to 66°C (- 40 to 151°F)
Relative humidity	0 to 95% (no condensation)
Altitude	sea level to 9 km (29,700 ft.)

• DMP11

Ordering Information

DMP11-AP—	System Option. Interfaces to EIA RS232/CCITT synchronous modems (Bell series 200 compatible) at speeds up to 19.2K b/s. Includes data set control. External cable not included; order BC22E-xx cable.
DMP11-FP—	System option. Interfaces to EIA RS423/RS449 V.24 synchronous modems at speeds up to 56K b/s. Includes data set control. External cable not included; order BC55D-xx cable.
DMP11-BP—	System option. Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent) at speeds up to 56K b/s. Includes data set control. Includes BC05Z-25 cable for modem connection.
DMP11-CP—	System option. Includes integral modem, for local interconnection. Supports switch-selectable speeds; at the following distances, maximum speeds supported are: 6000 ft at 1 Mb/s (HDX) 7000 ft 500 kb/s (FDX) External cables not included; Requires BC55S or BC55T external cable. Note: Earlier versions of this option used a plastic cable connector. To connect the BC55S or BC55T to the earlier BC55N and BC55M cables, BC56A/B/D/E adapter cables are available. The BC56A is the male to male cable for adapting BC55S to BC55M, and the BC56B is the male to female cable for adapting BC55S to BC55M. BC56D is the male to male cable for adapting BC55T to a BC56E is the cable for adapting BC55T to BC55N.
DMP11-EP—	System option. Interfaces to EIA RS422/RS449 V.24 synchronous modems, supports speeds up to 1M b/s (HDX) or 500 kb/s (FDX). Includes data set control for switched network operation. External cable not included; cable not available through DIGITAL.
DMP11-M—	Upgrade option. Includes base module only. For system installation select one of the following cabinet kits and the appropriate external cable.

CK-DMP11-AD—	EIA RS232 Cabinet Kit for use with shielded cabinets
CK-DMP11-A1—	EIA RS232 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.
CK-DMP11-BD—	V.35 Cabinet Kit for use with shielded cabinets.
CK-DMP11-B1—	V.35 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.
CK-DMP11-CD—	Integral modem Cabinet Kit for use with shielded cabinets.
CK-DMP11-C1—	Integral modem Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.
CK-DMP11-ED—	RS422/RS449 Cabinet Kit for use with shielded cabinets.
CK-DMP11-E1—	RS422/RS449 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.
CK-DMP11-FD—	RS423/RS449 Cabinet Kit for use with shielded cabinets.
CK-DMP11-F1—	RS423/RS449 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.

• DMR11 Synchronous Line Controller

DMR11

Specifications

Performance Characteristics

Operating mode	Full or half-duplex, point to point
Data format	8-bit bytes, DDCMP
Data rates	
DMR11 line unit module (local)	1,000,000 b/s
	500,000 b/s
	250,000 b/s
	56,000 b/s
DMR11 remote options (clocked by modem)	
DMR11-AA	19,200 b/s (max.)
DMR11-AB	250,000 b/s (max.)
DMR11-AE	1,000,000 b/s (max.)
Maximum distance	3,000 m. at 1,000,000 b/s
	3,700 m. at 500,000 b/s
	5,000 m. at 250,000 b/s
	6,000 m. at 56,000 b/s

UNIBUS loading	One UNIBUS DC load Five UNIBUS AC loads
Power Requirements	
DC power	
Microprocessor module	+ 5V \pm 5%, 7.0A
Line unit module	+ 5V \pm 5%, 5.0A
	+ 15V \pm 5%, .150A
	- 15 \pm 5%, .180A
Other Characteristics	
Standard interface	
DMR11-AA	CCITT V.24/EIA RS-232-C/EIA RS-449 compatible
DMR11-AB	CCITT V.35 or DDS Compatible
DMR11-AE	EIA RS-449/RS-422
Modems	
DMR11-AA	Bell 208, 209 or equivalent
DMR11-AB	Bell 500A LI/5 or GTE
	Lenkurt L500 A-5 or equivalent
DMR11-AE	Bell 2049 or 2096 Dataphone II or equivalent
Cable type (not supplied)	
Local line unit	BC55N twin axial (for use at 56 kb/s)
	BC55M triaxial (for use at 250 to 1,000 kb/s)
Remote options	BC05D recommended
Environment	
Operating	
Temperature	5° to 50°C (41° to 122°F)
Relative humidity	10 to 90% (no condensation)
	wet bulb temperature 32°C (90°F)
	max.dew point temperature 2°C
	(36°F) min.
Altitude	sea level to 2.4 km (8 kft)
Shipping	

Temperature	- 40° to 66°C (- 40 to 151°F)
Relative humidity	0 to 95% (no condensation)
Altitude	sea level to 9 km (30 kft)

• DMR11

Ordering Information

DMR11-AP—	System Option. Interfaces to EIA RS232/CCITT synchronous modems (Bell series 200 compatible) at speeds up to 19.2K b/s. Includes data set control. External cable not included; order BC22E-xx cable.
DMR11-FP—	System option. Interfaces to EIA RS423/RS429 V.24 synchronous modems at speeds up to 56K b/s. Includes data set control. External cable not included; order BC55D-xx cable.
DMR11-BP—	System option. Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent) at speeds up to 1 M b/s. Includes data set control. Includes BC05Z-25 cable for modem connection.
DMR11-CP—	System Option. Includes integral modem, for local interconnection. Supports switch-selectable speeds over the following distances: 6000 ft (1830 m) at 1 Mb/s 7000 ft (2135 m) at 500 kb/s 8000 ft (2440 m) at 250 kb/s 46,000 ft (14,030 m) at 56 kb/s External cables not included; Requires BC55S or BC55T external cable. Note: Earlier versions of this option used a plastic cable connector. To connect the BC55S or BC55T to the earlier BC55N and BC55M cables. BC56A/B/D/E adapter cables are available. The BC56A is the male to male cable for adapting BC55S to BC55M, and the BC56B is the male to female cable for adapting BC55S to BC55M. BC56D is the male to male cable for adapting BC55T to a BC55N, and BC56E is the cable for adapting BC55T to BC55N.
DMR11-EP—	System option. Interfaces to EIA RS422/RS429 V.24 synchronous modems, supports speeds up to 1 Mb/s (FDX). Includes data set control for switched network operation. External cable not included; cable not available through Digital.
DMR11-M—	Upgrade option. Includes base module only. For system installation select the appropriate external cable and one of the following cabinet kits.
CK-DMR11-AD—	EIA RS232 Cabinet Kit for use with shielded cabinets.
CK-DMR11-A1—	EIA RS232 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.
CK-DMR11-BD—	V.35 Cabinet Kit for use with shielded cabinets.

• DMF32 Multifunction Communications Controller

DMF32 Specifications

Performance Characteristics

Asynchronous Line Multiplexer

Operating modes	Full- or half-duplex
Signal compatibility	RS-232-C and RS-423-A, CCITT V.28/V.24
Line baud rates	50 v/s to 19,200 b/s (Lines 0 and 1 are split speed)
Lines 0 and 1 signals	TX DATA RX DATA or SEC RX DATA RTS, CTS, DSR, CAR SEC CAR, SEC RTS DTR, RI, DSRS USER TX (pin 18) USER RX (pin 25)
Lines 2-7	TX DATA RX DATA

Synchronous Line

Operating mode	Full- or half-duplex
Signal compatibility	EIA RS-232C and RS-423-A CCITT V.24 and V.28
Line baud rates	19,200 b/s (max.)
Synchronous line signals	TX DATA, RX DATA RTS, CTS, DSR, CAR, DTR, RI, DSRS, TX, CLK (DCE source) RX, CLK (DCE source) TX, CLK (DTE source) USER TX (pin 18) USER RX (pin 25)
External Modems	Bell 208, 209, 2048, 2096

Lineprinter Options

Printers available	LP32-AA, -BA (285/200 line/min)
	LP32-EA, -EB (600/445 line/min)
	LP32-GA, -GB (1220/905 line/min)
UNIBUS Loading	
Microcontroller	1 dc load
Module (M8396)	5.5 ac loads
Power Requirements	
Microcontroller	5V \pm 5%, 8A
Module (M8396)	15V \pm 5%, 0.4A
	- 15V 5%, 0.4A
Physical Description	
Microcontroller	Height (hex): 39.7 cm (15.7 in)
Module (M8396)	Length (standard): 30.2 cm (11.9 in)
Distribution Panel	Height: 10.1 cm (4.0 in)
	Length: 21.6 cm (8.5 in.)
Panel Mounting	Height: 13.3 cm (5.25 in)
Frame	Length: 48.2 cm (19.0 in)
Device Cables*	
Asynchronous lines	BC22E-10, 25 (16-conductor)
(FCC qualified)	BC22D-10, .25 (26-conductor null modem)
Synchronous line	BC22F-10, .25 (25-conductor)
Lineprinter interface	BC27A-30 included with LP32-AA, -BA, -EA, -EB
	BC27B-30 included with LP32-GA, -GB
Parallel interface	Not supplied
Environment	
Operating temperature	10° to 40°C (50° to 104°F)
Relative humidity	10 to 90% (no condensation)
Wet bulb temperature	28°C (82°F) max.
Dew point temperature	2°C (36°F) min.
Heat dissipation	167 Btu/h (total)
Altitude	Sea level to 2.4 km (7.920 ft)

Shipping†	
Temperature	- 40° to 66°C (- 40 to 151°F)
Relative humidity	0 to 95% (no condensation)
Altitude	Sea level to 9 km (29,700 ft)

* Digital cable type or equivalent type

† Unit packaged for shipping

• DMF32

Ordering Information

DMF32-LP—	System option. External cables for terminals not included, for connection to modems one BC22E-xx is recommended per line.
DMF32-M—	Upgrade option. Includes base module only. For system installation, select the appropriate external cables and one of the following cabinet kits.
CK-DMF32-LD—	DMF32 Cabinet Kit for use with shielded cabinets.
CK-DMF32-L1—	DMF32 Cabinet Kit for use with cabinets without I/O Connection Panels. Adapter bracket included.

• DMZ-32

Specifications

Physical	A single Hex-size module (M8398) is connected to the active I/O distribution panel (H3014) by a single-shielded, two-twisted pair wire. The 5¼" by 19" rack-mountable distribution panel contains its own power supply, fan, microprocessor-based module and expansion module for modem control. The Hex module is also microprocessor based. This module handles all UNIBUS interfacing and controls all data going on and off the high-speed T1 link.
Asynchronous Formats	Half or full-duplex supported formats: —single start bit —5, 6, 7 or 8 data bit character size —odd, even or no parity —1 or 2 stop bits —XON or XOFF operation
Electrical Interface Standards	The DMZ32 will directly support EIA RS232-C/CCITT V.24/V.28

Power Requirements	+ 5V 9.0A + 15V 0.1A
UNIBUS Load	1.0 dc 6.2 ac
Operating Environments	The DMZ32 will operate in an environment from 10 to 40 degrees C and in a relative humidity of 5 to 95 percent noncondensing. This complies with DEC STD 102 Class B products.

• DMZ-32

Ordering Information

Model No.	Description
DMZ32-M—	24-Line DMA Module
DMZ32-N—	Modem Control Upgrade Kit
DMZ32-AP—	Digital Factory Integrated DMZ32 with Modem Control
DMZ32-DP—	Digital Factory Integrated DMZ32 without Modem Control
CK-DMZ32-AY—	Cab Kit RS232 Active Distribution Panel with Model Control
CK-DMZ32-DY—	Cab Kit RS232 Active Distribution Panel without Model Control

• External Document Exchange

Minimum Hardware Required

- Any valid VAX/VMS system configuration.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System
- VAX 2780/3780 Protocol Emulator, Version 1.4
- ALL-IN-1 Office Menu, Version 1.2
- DECdx/VMS, Version 1.0

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

Support Category

- Digital Supported

• **EDE, External Document Exchange**
Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
License Options:			
A license is required for each CPU			
Single-Use License	QC760-UZ	QD760-UZ	QE760-UZ
VAXcluster License	—	QD760-QZ	QE760-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC760-HG	QD760-HG	QE760-HM
	QC760-HM	QD760-HM	QE760-HY
Software Revision Right-To-Copy Option	QC760-HZ	QD760-HZ	QE760-HZ
Documentation Only Option	QC760-GZ	QD760-GZ	QE760-GZ
Installation Service Option	QC760-IG	QD760-IG	QE760-IM
	QC760-IM	QD760-IM	QE760-IY
Software Product Service Agreements:			
DECsupport Service	QC760-9G	QD760-9G	QE760-9M
	QC760-9M	QD760-9M	QE760-9Y
Basic Service	QC760-8G	QD760-8G	QE760-8M
	QC760-8M	QD760-8M	QE760-8Y
Self-Maintenance Service	QC760-3G	QD760-3G	QE760-3M
	QC760-3M	QD760-3M	QE760-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

• VAX 3271 Protocol Emulator

Minimum Hardware Required

Any valid VAX/VMS system configuration plus a DUP11 synchronous line interface.

600 blocks of system disk space is required for installation of the product.

Approximately 8 Kbytes of non-paged memory are used by this software product for the first DUP11 unit. Each subsequent unit requires approximately 200 bytes of pool. Each terminal requires a further 200 bytes of non-paged memory. When the emulator is running, further non-paged memory is allocated sufficient to accommodate the number and size of the buffers requested by the user.

Terminal Emulation Performance depends on system and line load, application, and on the rate of data entry. Refer to product release notes of your local DIGITAL office for further information.

VAX-11/730 Systems

An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- Up to three additional DUP11's on VAX-11/780
 - One additional DUP11 on VAX-11/750
 - One DUP11 on a VAX-11/730
 - Up to four VT100 Terminals with Advanced Video Option (the number supported will depend on application and system loading)
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

Support Category

- Digital Supported
-

Software Installation

- Digital Installed
-

Software Product Support

- VAX 3271 Protocol Emulator includes standard warranty services.
-

Prerequisite Support

- A Network Profile must be prepared jointly by Digital and the customer. This plan includes descriptions of the Digital and IBM systems, the physical communications link(s), the application, the expected traffic, and the anticipated level of support required.
-

Customer Responsibilities

Before installation of the software the customer must

- Previously have installed all requisite hardware including terminals
 - Obtain, install, and demonstrate as operational any modems and other equipment and facilities necessary to interface to Digital communications equipment
 - Demonstrate equivalency of operation for modems other than Bell System 201C, 208A or 209A type modems or, in Europe, PTT approved modems
 - Have generated any necessary IBM host software that will be communicating with the 3271 Protocol Emulator to Digital's satisfaction
 - Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communications facilities, and terminals that are to be used during installation
-

To use the VAX 3271 Protocol Emulator Application Program Interface effectively, the customer must be prepared to work at the system programming level as well as the more traditional applications program level in both Digital and IBM systems.

Successful use of this product requires that:

- The customer design the application with full knowledge of what has to be done at the system programming level on the host IBM system to accomplish the desired function
 - The customer should be capable of generating both the IBM and Digital systems to achieve the desired CPU-to-CPU logical communications links
-

Delays caused by any failure to meet these responsibilities will be charged at the prevailing rate for time and materials.

VAX 3271 Protocol Emulator Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC112-UZ	QD112-UZ	QE112-UZ
VAXcluster License		QD112-QZ	QE112-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC112-HG	QD112-HG	QE112-HY
Software Revision Right-To-Copy Option	QC112-HZ	QD112-HZ	QE112-HZ
Documentation Only Option	QC112-GZ	QD112-GZ	QE112-GZ
Installation Service Option	QC112-IG	QD112-IG	QE112-IY
Software Product Service Agreements:			
DECsupport Service	QC112-9G	QD112-9G	QE112-9Y
Basic Service	QC112-8G	QD112-8G	QE112-8Y
Self-Maintenance Service	QC112-3G	QD112-3G	QE112-3Y
Source Code and Materials Options:			
Source License and Sources Distribution	QC112-EM	QD112-EM	QE112-EM
Source License and Sources Listings	QC112-FR	QD112-FR	QE112-FR
Sources Distribution	QC112-NH	QD112-NM	QE112-NM

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC112-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

R = Microfiche

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: the above listed ordering chart has been altered by the Day Ø Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day Ø Program.

SNA Gateway Specifications

Minimum Hardware Required

- Any valid VAX/VMS Operating System configuration with valid DECnet connection to the DECnet/SNA Gateway (R80/RL02 configuration required for VAX-11/730 systems)
- A properly configured DX24 DECnet/SNA Gateway which includes at least one DMR11 and a hardcopy console terminal
- VT100 Advanced Video Option (required for some 3270 Terminal Emulation features)

Optional Hardware

- One additional DMR11 (Local or Remote) for additional connection to VAX/VMS system
- One additional DUP11 synchronous line unit for additional connection to SNA

Prerequisite Software

For DECnet/SNA Gateway

- VAX/VMS Operating System*
- DECnet-VAX*

• SNA Gateway Ordering Information

	The DECnet/SNA Gateway includes both hardware and software. The DECnet/SNA software is downline loaded into the Gateway from a VAX/VMS system.
	There are three order numbers for this Gateway.
DECSA-AH—	Software on RL02 disk media.
DECSA-AM—	Software on 1600 bits/in., 9 track magnetic tape media.
DECSA-DZ—	No software, but license to copy current software.
	The DECnet/SNA Gateway hardware includes one DCSAX-LA EIA synchronous line card, but the software can support up to two line cards. You can add one additional DCSAX-LA synchronous line card.
Cables	To connect the Gateway to the SNA Network, order BC17D null modem cables for local connections and BC17C EIA extension cables for remote connections.

SNA Access Routines	SNA access routines are software packages that allow VAX system users to perform specific functions on IBM equipment connected to the SNA network. Four access routines are available: Gateway Management, Remote Job Entry (RJE), 3270 Terminal Emulation, and Application Interface.
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SNA Access Routines Gateway Management

	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782
Single-Use License, binaries, documentation, support services	QC452-AG	QD452-AG	QE452-AY
Single-Use License	QC452-DZ	QD452-DZ	QE452-DZ
Update/unsupported options	QC452-HG	QD452-HG	QE452-HG
Right to copy—single use	QC452-HZ	QD452-HZ	QE452-HZ
Documentation kit	QC452-GZ	QD452-GZ	QE452-GZ

Remote Job Entry

Single-Use License, binaries, documentation, support services	QC453-AG	QD453-AG	QE453-AY
Single-Use License	QC453-DZ	QD453-DZ	QE453-DZ
Update/unsupported options	QC453-HG	QD453-HG	QE453-HG
Right to copy—single use	QC453-HZ	QD453-HZ	QE453-HZ
Documentation kit	QC453-GZ	QD453-GZ	QE453-GZ

Application Interface

Single-Use License, binaries, documentation, support services	QC455-AG	QD455-AG	QE455-AY
Single-Use License	QC455-DZ	QD455-DZ	QE455-DZ
Update/unsupported options	QC455-HG	QD455-HG	QE455-HG
Right to copy—single use	QC455-HZ	QD455-HZ	QE455-HZ
Documentation kit	QC455-GZ	QD455-GZ	QE455-GZ

• SNA Gateway Ordering Information

Options	Order Number
License Options: A License Is Required For Each CPU.	
DECnet/SNA Gateway System Hardware (120V, 60Hz) and Single-Use License	DX24-AK
DECnet/SNA Gateway System Hardware (240V, 50Hz) and Single-Use License	DX24-AN

Materials And Service Options:

Distribution and Documentation Option	QJ732-HX
Software Revision Right-To-Copy Option	QJ732-HZ
Documentation Only Option	QJ732-GZ
Gateway Orientation and Installation Services	QSF01-SZ
Installation Service Option	QJ732-IX

Software Product Service Agreements:

DECsupport Service	QJ732-9X
Basic Service	QJ732-8X
Self-Maintenance Service	QJ732-3X

• **SNA Gateway
Ordering Information**

Options	System		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
<i>DECnet/SNA VMS Gateway Management Access Routine</i>			
Single-Use License	QC452-UZ	QD452-UZ	QE452-UZ
Materials and Service Options:			
Distribution and Documentation Option	QC452-HG	QD452-HG	QE452-HY
Software Revision Right-To-Copy Option	QC452-HZ	QD452-HZ	QE452-HZ
Documentation Only Option	QC452-GZ	QD452-GZ	QE452-GZ
Installation Service Option	QC452-IG	QD452-IG	QE452-IY
DECsupport Service	QC452-9G	QD452-9G	QE452-9Y
Basic Service	QC452-8G	QD452-8G	QE452-8Y
Self-Maintenance Service	QC452-3G	QD452-3G	QE452-3Y
<i>DECnet/SNA VMS 3270 Terminal Emulation Access Routine</i>			
Single-Use License	QC454-UZ	QD454-UZ	QE454-UZ
Materials and Service Options:			
Distribution and Documentation	QC454-HG	QD454-HG	QE454-HY
Software Revision Right-To-Copy	QC454-HZ	QD454-HZ	QE454-HZ
Documentation Only Option	QC454-GZ	QD454-GZ	QE454-GZ
Installation Service Option	QC454-IG	QD454-IG	QE454-IY
DECsupport Service	QC454-9G	QD454-9G	QE454-9Y

Basic Service	QC454-8G	QD454-8G	QE454-8Y
Self-Maintenance Service	QC454-3G	QD454-3G	QE454-3Y
<i>DECnet/SNA VMS Remote Job Entry Access Routine</i>			
Single-Use License	QC453-UZ	QD453-UZ	QE453-UZ
Materials and Service Options:			
Distribution and Documentation Option	QC453-HG	QD453-HG	QE453-HY
Software Revision Right-To-Copy Option	QC453-HZ	QD453-HZ	QE453-HZ
Installation Service Option	QC453-IG	QD453-IG	QE453-IY
DECsupport Service	QC453-9G	QD453-9G	QE453-9Y
Basic Service	QC453-8G	QD453-8G	QE453-8Y
Self-Maintenance Service	QC453-3G	QD453-3G	QE453-3Y
<i>DECnet/SNA VMS Application Interface Access Routine</i>			
Single-Use License	QC455-UZ	QD455-UZ	QE455-UZ
Materials and Service Options:			
Distribution and Documentation	QC455-HG	QD455-HG	QE455-HY
Software Revision Right-To-Copy Option	QC455-HZ	QD455-HZ	QE455-HZ
Documentation Only Option	QC455-GZ	QD455-GZ	QE455-GZ
Installation Service Option	QC455-IG	QD455-IG	QE455-IY
DECsupport Service	QC455-9G	QD455-9G	QE455-9Y
Basic Service	QC455-8G	QD455-8G	QE455-8Y
Self-Maintenance Service	QC455-3G	QD455-3G	QE455-3Y

• **VAX 2780/3780 Protocol Emulator**

Minimum Hardware Required

- Any valid VAX-11/730, VAX-11/750, or VAX-11/780 system configuration with a DUP-11.
-

VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.
-

Optional Hardware

- Up to three additional DUP-11s for VAX-11/780
 - One additional DUP-11 for VAX-11/750
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

Software Installation

- Digital Installed
-

Support Category

- Digital Supported
-

Customer Responsibilities

Before installation of the software, the customer must

- Previously have installed all requisite hardware including terminals
 - Obtain, install, and demonstrate as operational any modems and other equipment and facilities necessary to interface to Digital's communication equipment
-

-
- Demonstrate equivalency of operation for modems other than Bell 201, 208, and 209, or in Europe, PTT approved modems
-
- Provide a relevant file or job that can be submitted to the remote system to facilitate installation verification of the software
-
- Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communication facilities, and terminals that are to be used during installation
-

Prerequisite Software

- VAX/VMS Operating System
-

Optional Software

- None
-

Training Credits

- None
-

Software Installation

- Digital Installed
-

Support Category

- Digital Supported
-

Customer Responsibilities

Before installation of the software, the customer must

- Previously have installed all requisite hardware including terminals
-
- Obtain, install, and demonstrate as operational any modems and other equipment and facilities necessary to interface to Digital's communication equipment
-
- Demonstrate equivalency of operation for modems other than Bell 201, 208, and 209, or in Europe, PTT approved modems
-
- Provide a relevant file or job that can be submitted to the remote system to facilitate installation verification of the software
-

- Make available for a reasonable period of time, as mutually agreed by Digital and the customer, all hardware, communication facilities, and terminals that are to be used during installation
- Customer accepts responsibility for proper operation of equipment or software not provided by Digital and conformance of such equipment and software to the IBM specifications cited below.

• VAX 2780/3870 Protocol Emulator Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780
License Options: A license is required for each CPU			
Single-Use License	QC111-UZ	QD111-UZ	QE111-UZ
VAXcluster License		QD111-QZ	QE111-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC111-HG	QD111-HG	QE111-HY
Software Revision Right-To-Copy Option	QC111-HZ	QD111-HZ	QE111-HZ
Documentation Only Option	QC111-GZ	QD111-GZ	QE111-GZ
Installation Service Option	QC111-IG	QD111-IG	QE111-IY
Software Product Service Agreements:			
DECsupport Service	QC111-9G	QD111-9G	QE111-9Y
Basic Service	QC111-8G	QD111-8G	QE111-8Y
Self-Maintenance Service	QC111-3G	QD111-3G	QE111-3Y
Source Code and Materials Options:			
Source License and Sources Distribution	QC111-EH	QD111-EM	QE111-EM
Source License and Sources Listings	QC111-FR	QD111-FR	QE111-FR
Source Distribution	QC111-NH	QD111-NM	QE111-NM

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC111-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge*
H = RL02 Disk Cartridge
M = 9-track 1600 BPI Magtape (PE)

R = Microfiche
Y = RX01 Floppy Diskette
Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: the above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

• The X.25 Communications Protocol

Prerequisite Hardware

The DECnet Router/X.25 Gateway software runs on the following Ethernet Communications Server hardware option: DECSA-EA—Ethernet Communication Server hardware, including a one-line synchronous line card (EIA RS-232-C/CCITT V.24, speeds up to 19.2 Kbits per second, full duplex). Up to seven additional lines (EIA RS-232-C/CCITT V.24 or CCITT V.35) can be supported on the DECnet Router .X.25 Gateway.

The DECnet/SNA Gateway hardware and software are combined under a single option designation: DECSA-AH/AM/DZ—Ethernet Communications Server hardware, including a one-line synchronous line card (EIA RS-232-C/CCITT V.24), and gateway software. One additional EIA RS-232-C/CCITT V.24 line can be supported on the DECnet/SNA Gateway. In addition, the following hardware is required:

- All Ethernet physical channel hardware (for example, coaxial cable and terminators).
- An H4000 transceiver or an LNI and transceiver cable.

Prerequisite Software

The DECnet Router/X.25 Gateway and the DECnet/SNA Gateway require Phase IV DECnet host support on one or more of the following Ethernet hosts for downline loading the software into the unit.

- VAX/VMS running DECnet-VAX (Phase IV)
- RSX-11M or RSX-11M-PLUS running DECnet-11M (Phase IV) or DECnet-11M-PLUS (Phase IV).

The DECnet Router/X.25 Gateway and the DECnet/SNA Gateway can be easily installed by customers. Since the configuration of each server is bounded, installation of the software requires only answering questions about line configurations and operation, as is done for communications lines connected to host systems. A copy of this configuration file resides on one or more designated "load hosts," so that the memory-only server can be easily reconfigured.

• X.25 Gateway Router

X.25 Gateway Router Specifications

Operating Environment

Temperature	+ 10 to + 40°C (+ 50 to + 104°F)
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Relative humidity	10%-90% (non-condensing)
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Maximum altitude	2.4 km (8,000 ft) Nonoperating
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Environment

Temperature	- 40 to + 66°C (- 40 to + 151°F)
-------------	----------------------------------

Maximum altitude	9.1 km (30,000 ft)
------------------	--------------------

Acoustic Noise Emissions

Sound power	5.8 bels
-------------	----------

Sound pressure level	42 dBA (at 1 m distance, 1.5 m height)
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Physical Description

Height	41.9 cm (16.5 in)
--------	-------------------

Width	64.8 cm (25.5 in)
-------	-------------------

Depth	55.9 cm (22.0 in)
-------	-------------------

Weight	39.9 kg (88 lbs) without line cards
--------	-------------------------------------

Power and Heat Dissipation

Line voltage tolerance

Low range	120 VAC nominal 90-128 (rms) single phase three wire
-----------	--

High range	240 VAC nominal 180-256 (rms) single phase three wire
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Line current

120 VAC	7.0 A
---------	-------

240 VAC	3.5 A
---------	-------

Frequency tolerance	47-63 Hz
---------------------	----------

Max. heat dissipation	1.417 Btu/h
-----------------------	-------------

Max. AC power consumption	411 W
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• X.25 Gateway Ordering Information

The DECnet Router/X.25 Gateway consists of three elements:

- The Server hardware, DECSA-EA, a freestanding unit with one DCSAX-LA synchronous line card (RS232-C/V.24).
- The DECnet Router/X.25 Gateway software, Q*727-A, which is down-line loaded into the Server (Gateway) from a VAX/VMS or RSX-11M/M-PLUS DECnet host on the Ethernet.
- The X.25/X.29 Extension Package, Q*728-A, which contains the host system access routines required to take advantage of the X.25 Gateway in VAX-11 to non-DECnet system (or X.29 terminal) situations.

Server Type	Hardware Model No.	Load Host Software Model No.		
		VAX/VMS	RSX-11M	RSX-11M-PLUS
1-line DECnet Router/X.25 Gateway	DECSA-EA	Q x 727	QP727	QR727

The suffix for the software model number denotes, first, the license/support category and, second, the distribution media.

Load Host Software Model No.	License/support Category	Distribution Media
Q____-AM	Single use, with support	1600 bpi, 9TR mag tape
Q____-AH	Single use, with support	RL02 disk
QLA01-DZ	Right-to-copy, no support	—
Q____-HM	Update: binary kit, no support	1600 bpi, 9TR mag tape
Q____-HH	Update: binary kit, no support	RL02 disk
Q____-HZ	Update: right-to-copy, no support	—

When ordering software for a Server system:

1. The first Server of any type requires a Q____-AH/AM license: Single Use, With Support.
2. The second (third, fourth. . .) Server of that *same* type may be a QLA01-DZ license: Right-To-Copy, No Support.
3. When warranty has expired and software updates are available for a particular type of Server system,
 - a. order a Q____-HH/HM license for the first Server of that type, and
 - b. order a Q____-HZ license for the second (third, fourth. . .) Server of that *same* type.
4. If the load host is a VAX-11/730, designate only RL02 (-xH) as the distribution medium.

• VAX PSI, Packetnet System Interface

Minimum Hardware Required

Any valid VAX/VMS system configuration with:

- At least 80 Kbytes of nonpaged memory for the VAX PSI software and data storage.
- At least 20 Kbytes of nonpaged memory for the VAX PSI X.29 software and data storage, if required.
- Further nonpaged memory for each virtual circuit, calculated as:
 $(\text{window size}) * (\text{packet size} + 96) * 2 + 700 \text{ bytes}$
which is charged to the quota of the using process
- At least 2000 blocks of system disk space for the use of the VAX PSI software.
- One of the following communications devices supporting one line: DUP11-DA, KMS11-BD, KSM11-BE, KMS11-PX or KMS11-PY (KMS11-BD, -BE not supported on VAX-11/730)

Optional Hardware

- One additional supported communications device

Prerequisite Software

- VAX/VMS Operating System

Optional Software

- DECnet-VAX, Version 3.0

Training Credits

- None

Software Installation

- Digital Installed

Support Category

- Digital Supported

Warranty

- None

• VAX PSI, Packetnet System Interface Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782**
Single-use license, binaries, documentation, support services.	QC071-AG	QD071-AG	QE071-AY
Single-use license only option, no binaries, no documentation, no support services.	QC071-DZ	QD071-DZ	QE071-DZ
Update/Unsupported Options Users of VAX PSI whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC071-HG	QD071-HG	QE071-HY
Right to copy for single-use, no binaries, no documentation.	QC071-HZ	QD071-HZ	QE071-HZ
Miscellaneous Options Documentation-only kits.	QC071-GZ	QD071-GZ	QE071-GZ

**The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

The following key (G, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QD071-AG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge*

Y = RX01 Single Density 8" Diskette

Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• VAX BTS

Software Product Support Plan

- VAX BTS includes standard warranty services.
-

Minimum Hardware Required

- Any valid VAX/VMS system configuration with at least one megabyte of memory plus:
 - At least one KMS 11-BD/BE for communications lines to the Bisync Terminal
 - Bell 208, 209, or equivalent modems for each terminal and IBM-compatible host communications line
 - A DUP11-DA for each IBM-compatible host line
 - Block Space Requirements (Block Cluster Size = 1)
 - —Disk space required for installation 2400 blocks (1.23 Mbytes)
 - —Disk space required for use (permanent) 550 blocks (285 Mbytes)
-

Approximately 37K bytes of non-paged memory are used by this software product which includes 8K bytes to store the KMS11 microcode to support powerfail recovery. (The application or operator has to initiate the microcode reload.) In addition, 500 bytes are required for each Bisync line and 250 bytes for each Bisync Terminal.

The minimum hardware requirements for any future version of this product may be different than the minimum hardware requirements current version.

VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.
-

Optional Hardware

- Up to three additional KMS11-BD/BE's on VAX-11/780
 - One additional KMS11-BD/BE on VAX-11/750
-

Prerequisite Software

- VAX 3271 P.E.*
-

Optional Software

- None
-

• VAX BTS Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780
License Options: A license is required for each CPU			
Single-Use License	QC416-UZ	QD416-UZ	QE416-UZ
VAXcluster License	—	QD416-QZ	QE416-QZ
Materials and Service Options:			
Distribution and Documentation Option	QC416-HG	QD416-HG	QE416-HY
	QC416-HM	QD416-HM	QE416-HM
Software Revision Right-To-Copy Option	QC416-HZ	QD416-HZ	QE416-HZ
Documentation Only Option	QC416-GZ	QD416-GZ	QE416-GZ
Installation Service Option	QC416-IG	QD416-IG	QE416-IY
	QC416-IM	QD416-IM	QE416-IM
Software Product Service Agreements:			
DECsupport Service	QC416-9G	QD416-9G	QE416-9Y
	QC416-9M	QD416-9M	QE416-9M
Basic Service	QC416-8G	QD416-8G	QE416-8Y
	QC416-8M	QD416-8M	QE416-8M
Self-Maintenance Service	QC416-3G	QD416-3G	QE416-3Y
	QC416-3M	QD416-3M	QE416-3M

The distribution Media Codes used in the Software Options Chart are described below. You specify the desired Media Code at the end of the Order Number, e.g., QC416-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge*

Y = RX01 Floppy Diskette

M = 9-track 1600 BPI Magtape (PE)

Z = No hardware dependency

*The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: the availability of these software product options and services may vary by country. Customers should contact their local DIGITAL office for information on availability.

• Terminal Servers

Prerequisite Hardware

The Terminal Server software runs on either of the following Ethernet Communications Server hardware options:

- DECSA-CA—Ethernet Communications Server hardware, including eight asynchronous line cards (supports 16 EIA RS-232-C/CCITT V.24 physical terminal connections).
- DECSA-DA—Ethernet Communications Server hardware, including 16 asynchronous line cards (supports 32 EIA RS-232-C/CCITT V.24 physical terminal connections).

In addition, the following hardware is required:

- All Ethernet physical channel hardware (for example, coaxial cable and terminators)
- An H4000 transceiver or an LNI and transceiver cable.

Prerequisite Software

The Terminal Server requires a Phase IV DECnet host to support downline software loading. One or more of the following systems may be used as Ethernet hosts:

- VAX/VMS running DECnet-VAX (Phase IV).
- RSX-11M or RSX-11M-PLUS running DECnet-11M (Phase IV) or DECnet-11M-PLUS (Phase IV).

Phase IV DECnet must include the requisite network virtual terminal support for communication with Terminal Servers.

Terminal Server Specifications

Operating Environment

Temperature	+ 10 to + 40°C (+ 50 to + 104°F)
-------------	-----------------------------------

Relative humidity	10%-90% (noncondensing)
-------------------	-------------------------

Maximum altitude	2.4 km (8,000 ft)
------------------	-------------------

Nonoperating Environment

Temperature	- 40 to + 66°C (- 40 to 151°F)
-------------	--------------------------------

Relative humidity	0%-95% (noncondensing)
-------------------	------------------------

Maximum altitude	9.1 km (30,000 ft)
------------------	--------------------

Acoustic Noise Emissions

Sound power	5.8 bels
Sound pressure level	42 dBA (at 1 m distance, 1.5 m height)
Physical Description	
Height	41.9 cm (16.5 in.)
Width	64.8 cm (25.5 in.)
Depth	55.9 cm (22.0 in.)
Weight	16-line Terminal Server—
	39.9 kg (88 lbs) without line cards
	32-line Terminal Server—
	49.9 kg (110 lbs) without line cards
Power and Heat Dissipation	
Line voltage tolerance	
Low range	120 VAC nominal
	90-128 (rms) single phase three wire
High range	240 VAC nominal
	180-256 (rms) single phase three wire
Line current	
120 VAC	7.0 A
240 VAC	3.5 A
Frequency tolerance	47-63 Hz
For 16-line Terminal Server	
Max. heat dissipation	1.417 Btu/h
Max. AC power consumption	411 W
For 32-line Terminal Server	
Max. heat dissipation	2.245 Btu/h
Max. AC power consumption	650 W

• Terminal Server Ordering Information

Server Type	Hardware Model No.	Load Host Software Model No.		
		VAX/VMS	RSX-11M	RSX-11M-PLUS
16-line Terminal Server	DECSA-CA	Q x 726	QP726	QP726
32-line Terminal Server	DECSA-DA	Q x 726	QP726	QP726

The suffix for the software model number denotes, first, the license/support category and, second, the distribution media.

Load Host Software Model No.	License/support Category	Distribution Media
Q____-AM	Single use, with support	1600 bpi, 9TR mag tape
Q____-AH	Single use, with support	RL02 disk
QLA01-DZ	Right-to-copy, no support	—
Q____-HM	Update: binary kit, no support	1600 bpi, 9TR mag tape
Q____-HH	Update: binary kit, no support	RL02 disk
Q____-HZ	Update: right-to-copy, no support	—

When ordering software for a Server system:

1. The first Server of any type requires a Q____-AH/AM license: Single Use, With Support.
2. The second (third, fourth, . . .) Server of that *same* type may be a QLA01-DZ license: Right-To-Copy, No Support.
3. When warranty has expired and software updates are available for a particular type of Server system,
 - a. order a Q____-HH/HM license for the first Server of that type, and
 - b. order a Q____-HZ license for the second (third, fourth, . . .) Server of that *same* type.
4. If the load host is a VAX-11/730, designate only RL02 (-xH) as the distribution medium.

• H4000 Digital Ethernet Transceiver

H4000 Specifications

Performance

Operating mode	Capable of simultaneous transmission and reception (CSMA/CD)
Data rate	10 Mbits/sec
Network specifications	100 stations per 500 m segment 1024 stations (maximum)

RFI and EMI	The H4000 is U.L. Listed in the Data Processing category and meets FCC 47 CFE, Part 15, Subpart J.	
Coaxial Cable Interface	Operationally complies with Ethernet Specification.	
Transceiver Cable Interface		
Connector type	164493-1 15-pin D Sub-miniature	
Pin Assignment		
	+	-
Transmit pair	3	10
Receive pair	5	12
Collision pair	2	9
Power pair	13	6
Shield	1 plus the connector shell	
Termination impedance (differential)	76.6 ohms (with less than 2% common mode imbalance)	
Termination impedance (common mode)	greater than 100 ohms	
Signal level differential	± 630 mV nominal	
Common mode range	± 30 V	
Power requirement voltage at transceiver	11.4-15.75 V through 4 ohm maximum	
Current (maximum)	0.5 A	
Typical @ 12 V	0.35 A	
Physical Description		
Length	30.2 cm (11.9 in.)	
Width	9.5 cm (3.74 in.)	
Height	9.0 cm (3.54 in.)	
Operating Environment		
Temperature	5° to 50°C (41° to 122°F)	
Relative humidity	10 to 90% (no condensation)	
Wet bulb temperature	32°C (90°F) max.	
Dew point temperature	2°C (36°F) min.	

Altitude	sea level to 2.4 km (8,000 ft)
Shipping Environment	
Temperature	- 40° to 50°C (-40° to 151°F)
Relative humidity	0 to 95% (no condensation)
Altitude	sea level to 9 km (30,000 ft)
Ethernet Coaxial Cables*	It is recommended that TEFLON coaxial cable be used. BNE2A (or equivalent)
Transceiver Cables	
BNE3A	Low loss PVC jacket
BNE3C	Low loss TEFLON jacket

• H4000

Ordering Information

H4000—	H4000 Digital Ethernet Transceiver.
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• Digital Ethernet Repeater

Ethernet Repeater Specifications

Physical Description

Length	43.2 cm (17 in.)
Width	30.5 cm (12 in.)
Height	8.9 cm (3.5 in.)

Operating Requirements

Data rate	10 Mbits per second
Maximum number of repeaters	2 between communicating devices and 100 per 500 meter coaxial cable segment.

Electrical Requirements

Switch-selectable	110 VAC @ 60 Hz and 220 VAC @ 50 Hz
Power supply board transceiver power	2.5A @ 12 VDC

Environmental Requirements

Temperature range	5° to 50°C (41° to 122°F)
Relative Humidity	10% to 90% (no condensation)
Hardware Requirements	2 H4000 transceivers and 2 transceiver cables.

• Ethernet Repeater Ordering Information

DEREP-AA—	Local Repeater-U.S.
-----------	---------------------

• DEQNA

DEQNA Specifications

The DEQNA consists of one dual module, a distribution panel, and the associated internal cable. Either the H4000 transceiver or the LNI and a transceiver cable are required and are not supplied with the DEQNA. The DEQNA is not guaranteed with any other transceiver.

The DEQNA is supported on the following host computer systems:

- Micro PDP-11
 - PDP-11/23-PLUS
-

Physical Description (Dual Module)

Length	21.6 cm (8.5 in.)
Height	13.25 cm (5.22 in.)

Power Requirements

+ 12 VDS	- 5 VDC
5.0A	3.5A

Environmental Requirements

Temperature range	10-40°C (50-104°F)
Relative humidity	10%-90% (no condensation)

Transceiver Cables	The transceiver cable may be a maximum of 45 meters in length. Please refer to the latest DEC-direct catalog for the appropriate cables and cable lengths.
--------------------	--

• DEQNA Ordering Information

DEQNA-KP—	Module for new CPU (DIGITAL integrated at factory).
DEQNA-M—	Base module for existing CPU (this field upgrade module requires one of the following CPU cabinet kits for cable, bracket, and distribution panel insert).
CK-DEQNK-KA—	CPU cabinet kit for PDP-11/23.

CK-DEQNK-KB— CPU cabinet kit for Micro-11.

CK-DEQNK-KC— CPU cabinet kit for PDP-11/23-PLUS.

Requires one Ethernet H4000 Transceiver or DELNI and a transceiver cable that you must order separately.

Supports LSI-11 or Q-BUS based CPUs: PDP-11/03, PDP-11/23A, PDP-11/23-PLUS, PDP-11/23S, and Micro PDP-11 with DECnet Phase IV software.

• DEUNA

DEUNA Specifications

Performance

Operating mode	Simplex (CSMA/CD)
----------------	-------------------

Data format	Ethernet Specification
-------------	------------------------

Data rate	10 Mbits/sec
-----------	--------------

Network specifications	1024 stations (maximum)
------------------------	-------------------------

UNIBUS Loading

Module pair	4 UNIBUS DC loads 2 UNIBUS AC loads
-------------	--

Power Requirements DC power

Port module	@ + 5V + 5%, 7.0A
-------------	-------------------

Link module	@ + 5V + 5%, 7.0A @ - 15V + 5%, 0.5A (for H4000 transceiver)
-------------	--

Physical Description

Port and link module

Height (hex)	21.4 cm (8.4 in.)
--------------	-------------------

Length	39.8 cm (15.7 in.)
--------	--------------------

Cable interface panel

Height	10.6 cm (4.0 in.)
--------	-------------------

Length	10.6 cm (4.0 in.)
--------	-------------------

Transceiver Cables*

BNE3A	Low loss PVC jacket
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BNE3C	Low loss TEFLON*** jacket
-------	---------------------------

Operating Environment

Temperature	5° to 50°C (41° to 122°F)
-------------	---------------------------

Relative humidity	10 to 90% (no condensation)
Wet bulb temperature	32°C (90°F) max.
Dew point temperature	2°C (36°F) min.
Altitude	sea level to 2.4 km (8,000 ft)

Shipping Environment

Temperature	-40° to 60°C (-40° to 151°F)
Relative humidity	0 to 95% (no condensation)
Altitude	sea level to 9 km (30,000 ft)

*Cables are available in different lengths from DIGITAL's accessories and Supplies Group.

• DEUNA

Ordering Information

DEUNA-AA	DEUNA Unibus-to-Ethernet communications controller
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Requires one Ethernet H4000 Transceiver or DELNI and a transceiver cable which must be ordered separately.

• DELNI (Local Network Interconnect)

DELNI

Specifications

Physical Description

Length	43.2 cm (17 in.)
Width	17.8 cm (7 in.)
Height	6.4 cm (2.5 in.)

Operating Requirements

Data rate	10 Mbits per second
Number of lines	8 device ports plus 1 connector for the H4000 transceiver cable.

Electrical Requirements

Switch-selectable	110 VAC @ 60 Hz and 220 VAC @ 50 Hz
-------------------	-------------------------------------

Operating Environment

Temperature range	5° to 50°C (41° to 122°F)
Relative humidity	10% to 90% (no condensation)

Hardware Requirements An Ethernet communications controller in each node and a transceiver cable for each device are required. For connected (global) configurations, an H4000 transceiver and transceiver cable are required.

• **DELNI**

Ordering Information

DELNI-AA— Local Network Interconnect-U.S.

• **DECnet Router**

Prerequisite Hardware

The DECnet Router software runs on the following Ethernet Communications Server hardware option:

-
- DECSA-EA—Ethernet Communications Server hardware, including a one-line synchronous line card (EIA RS-232-C/CCITT V.24, speeds up to 19.2 Kbits per second, full-duplex). Up to seven additional EIA RS-232-C/CCITT V.24 or CCITT V.35 lines can be supported by a DECnet Router Server.
-

In addition, the following hardware is required:

-
- All Ethernet physical channel hardware (for example, coaxial cable and terminators).
 - An H4000 transceiver or an LNI and transceiver cable.
-

Prerequisite Software

The DECnet Router Server requires a Phase IV DECnet host to support downline software loading. One or more of the following systems can be used as Ethernet hosts.

-
- VAX/VMS running DECnet-VAX (Phase IV)
 - RSX-11M or RSX-11M-PLUS running DECnet-11M (Phase IV) or DECnet-11M-PLUS (Phase IV).
-

The DECnet Router is designed for easy installation by customers. Since the configuration of the server is bounded, installation of the software requires answering questions about line configurations and operation as is done for communications lines connected to host systems. A copy of this configuration file resides on one or more designated "load hosts" such that the memory-only server can be easily reconfigured.

DECnet Router**Specifications****Operating Environment**

Temperature	+ 10 to + 40°C (+ 50 to + 104°F)
-------------	-----------------------------------

Relative humidity	10%-90% (non-condensing)
-------------------	--------------------------

Maximum altitude	2.4 km (8,000 ft)
------------------	-------------------

Nonoperating Environment

Temperature	-40 to + 66°C (-40 to + 151°F)
-------------	--------------------------------

Relative humidity	0%-95% (noncondensing)
-------------------	------------------------

Maximum altitude	9.1 km (30,000 ft)
------------------	--------------------

Acoustic Noise Emissions

Sound power	5.8 bels
-------------	----------

Sound Pressure level	42 dBA (at 1 m distance, 1.5 m height)
----------------------	--

Physical Description

Height	41.9 cm (16.5 in)
--------	-------------------

Width	64.8 cm (25.5 in)
-------	-------------------

Depth	55.9 cm (22.0 in)
-------	-------------------

Weight	39.9 kg (88 lbs) without line cards
--------	-------------------------------------

Power and Heat Dissipation**Line voltage tolerance**

Low range	120 VAC nominal 90-128 (rms) single phase three wire
-----------	--

High range	240 VAC nominal 180-256 (rms) single phase three wire
------------	---

Line current

120 VAC	7.0A
---------	------

240 VAC	3.5A
---------	------

Frequency tolerance	47-73 Hz
---------------------	----------

Max. heat dissipation	1.417 Btu/h
-----------------------	-------------

Max. AC power consumption	411 W
---------------------------	-------

• DECnet Router Ordering Information

Server Type	Hardware Model No.	Load Host Software Model No.		
		VAX/VMS	RSX-11M	RSX-11M-PLUS
1-line DECnet Router Server	DECSA-EA	Q x 725	QP725	QP725

The suffix for the software model number denotes, first, the license/support category and, second, the distribution media.

Load Host Software Model No.	License/Support Category	Distribution Media
Q____-AM	Single use, with support	1600 bpl, 9TR mag tape
Q____-AH	Single use, with support	RL02 disk
QLA01-DZ	Right-to-copy, no support	—
Q____-HM	Update: binary kit, no support	1600 bpl, 9TR mag tape
Q____-HH	Update: binary kit, no support	RL02 disk
Q____-HZ	Update: right-to-copy, no support	—

When ordering software for a Service system:

1. The first Server of any type requires a Q____-AH/AM license: Single Use, With Support.
2. The second (third, fourth, ...) Server of that *same* type may be a QLA01-DZ license: Right-To-Copy, No Support.
3. When warranty has expired and software updates are available for a particular type of Server system,
 - a. order a Q____-HH/HM license for the first Server of that type, and
 - b. order a Q____-HZ license for the second (third, fourth, ...) Server of that *same* type.
4. If the load host is a VAX-11/730, designate only RL02(-xH) as the distribution medium.

• poly-XFR

Minimum Hardware Required

Local Systems

-
- Any VT180 System supporting CP/M, Version 2.2 or
 - Any PC100 (RAINBOW) system supporting CP/MSUP/TM-86/80, Version 1.0 or
 - Any DECmate II system supporting DECmate II CP/MSUP/TM 2.2, Version 1.0 or Version 2.0 with one of the following system configurations: Host Systems
 - VT180 system supporting CP/M, Version 2.2
 - PC100 (RAINBOW) system supporting CP/MSUP/TM-86/80, Version 1.0 or Version 2.0
 - DECmate II system supporting DECmate II CP/MSUP/TM 2.2, Version 1.0 or Version 2.0
 - VAX-11 system supporting VAX/VMS, Version 3.4
 - PDP-11 system supporting RT-11, Version 5.0
 - PDP-11 system supporting RSX-11M, Version 4.1
 - PDP-11 system supporting RSX-11M-PLUS, Version 2.1
 - PDP-11 system supporting RSTS/E, Version 8.0
-

NOTE

50KB required disk space for each VT180 CP/M host software system

36KB required disk space for each PC100 CP/M-86/80 host software system

Optional Hardware

-
- None
-

Prerequisite Software

Local System

-
- VT180 CP/M, Version 2.2
 - PC100 CP/MSUP/TM-86/80, Version 1.0 or Version 2.0
 - DECmate II CP/MSUP/TM 2.2, Version 1.0 or 2.0
-

Host Systems

- VT180 CP/M, Version 2.2
- PC100 CP/M-86/80, Version 1.0 or Version 2.0
- DECmate II CP/M, Version 1.0 or 2.0
- RSX-11M, Version 4.1
- RSX-11M-PLUS, Version 2.1
- RSTS/E Version 8.0
- RT-11, Version 5.0
- VAX/VMS, Version 3.4

Optional Software

- None

Installation

- Customer Installed

• poly-XFR

Ordering Information

These products can be ordered for the *Local* and *Host* systems as follows:

Version 1.1A for VT180 Local and Host Systems

QA138-C—	Single-use license, binaries, documentation, no support services (media: 2)
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Version 1.0 for PC100 Local and Host Systems

QA193-C—	Single-use license, binaries, documentation, no support services (media: 3)
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Version 1.0 for DECmate II Local and Host Systems

QA202-C3—	Single-use license, binaries, documentation, no support services (media: 3)
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Version 2.0 for VAX/VMS Host Systems

QA142-C—	Single-use license, binaries, documentation, no support services (media: G, M, Y)
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• poly-XFR
Ordering Information Continued:

 Version 2.0 for RSTS/E Host Systems

QA141-C—	Single-use license, binaries, documentation, no support services (media: D)
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 Version 2.0 for RSX-11M and RSX-11M-PLUS Host Systems

QA139-C—	Single-use license, binaries, documentation, no support services (media: D, H, Q)
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 Version 2.0 for RT-11 Host Systems

QA140-C—	Single-use license, binaries, documentation, no support services (media: D, H, Y)
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The following key (2, 3, D, G, H, M, Q, Y) represents the distribution media for the product and must be specified at the end of the ordering number e.g., QA138-C2 = RX18 single density 5¼" diskette.

- 2 = RX18 Single Density 5¼" Diskette
- 3 = RX50 Double Density 5¼" Diskette
- D = 9-track 800 BPI Magtape (NRZI)
- G = TU58 DECtape II Cartridge*
- H = RL02 Disk Cartridge
- M = 9-track 1600 BPI Magtape (PE)
- Q = RL01 Disk Cartridge
- Y = RX01 Single Density 8" Diskette

• DECdx/VMS WPS/Host Document Transfer
Minimum Hardware Required

-
- Any valid VAX/VMS system configuration with an available local or remote serial full-duplex asynchronous terminal line supported by the operating system. (An R80/RL02 configuration is required for VAX-11/730 systems.)
 - Each additional WPS-8 system configuration with the communications option enabled or one WS78-CA
 - Each additional WPS-8 system simultaneously connected to the host required its own line
-

Optional Hardware

-
- None
-

Prerequisite Software

- VAX/VMS Operating System*
-

With one of the following:

- WPS-8 DISK, 200 Series, Version 4.5
 - WPS-8/DISKETTE, 200 Series, Version 3.5
 - WPS-8/DISKETTE, 78 Series, Version 3.5
 - DECmate I/WPS, Version 2.1 (with communications software activated)
 - DECmate II/WPS, Version 1.0 or 1.1 (with communications software activated)
-

Optional Software

- None
-

Training Credits

- None
-

Software Installation

- Customer Installed
-

• DECdx/VMS Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 & VAX-11/782*
Single-use license, binaries, documentation, support services.	QC708-AG	QD708-AG	QE708-AY
Single-use license only option, no binaries, no documentation, no support services.	QC708-DZ	QD708-DZ	QE708-DZ
Update/Unsupported Options Users of DECdx/VMS whose specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.	QC708-HG	QD708-HG	QE708-HY
Right-to-copy for single-use, no binaries, no documentation.	QC708-HZ	QD708-HZ	QE708-HZ
Upgrade Options Customers who are currently licensed users of DX/VMS may obtain this new product by purchasing a license to an upgrade kit for use on the same CPU as their previous license.	QC712-AG	QD712-AG	QE712-AY
Single-use license-only option, no binaries, no documentation	QC712-DZ	QD712-DZ	QE712-DZ
Miscellaneous Options Documentation-only kits.	QC708-GZ	QD708-GZ	QE708-GZ

*The VAX-11/782 is a multiprocessor that is considered a single CPU for binary licensing purposes.

The following key (G, Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QC708-AG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge**

Y = RX01 Single Density 8" Diskette

Z = No hardware dependency

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• Message Router for VMS

Minimum Hardware Required

Any valid VAX/VMS system configuration that:

- supports a DECnet Phase III or Phase IV network
- has at least 1800 blocks of disk space and 200 pages of memory (Additional requirements are dependent upon user's system application.)

For VAX-11/730 Systems

- An R80/RL02 configuration is required for VAX-11/730 systems.

Optional Hardware

- None

Prerequisite Software

- VAX/VMS Operating System
- DECnet-VAX

NOTE

Both the Message Router and DECnet software must be installed on all nodes that will be used to initially send or ultimately receive messages. In addition, it is recommended that Message Router be installed on any node that is part of the routing scheme.

Optional Software

- None

Training Credits

- None

Software Installation

- Customer Installed

Support Category

- Digital Supported

• Message Router for VMS Ordering Information

Options	Systems		
	VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QC730-UZ	QD730-UZ	QE730-UZ
VAXcluster License		QD730-QZ	QE730-QZ
Migration Option from VAX DECmail Multinode	QC731-UZ	QD731-UZ	QE731-UZ
Materials and Service Options:			
Distribution and Documenta- tion Option	QC730-HG	QD730-HG	QE730-HY
Software Revision Right-To- Copy Option	QC730-HZ	QD730-HZ	QE730-HZ
Documentation Only Option	CQ730-GZ	QD730-GZ	QE730-GZ
Installation Service Option	QC730-IG	QD730-IG	QE730-IY
Software Product Service Agreements:			
DECsupport Service	QC730-9G	QD730-9G	QE730-9Y
Basic Service	QC730-8G	QD730-8G	QE730-8Y
Self-Maintenance Service	QC730-3G	QD730-3G	QE730-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QC730-HG = binaries on TU58 DECtape II Cartridge.

G = TU58 DECtape II Cartridge**

Z = No hardware dependency

Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

• **Observer**

Minimum Hardware Required

Any valid RSX-11M or RSX-11M-PLUS system configuration with:

- PDP-11/23-PLUS, 11/24, 11/44, or 11/70 processor
- At least 512KB mainmemory dedicated to OBSERVER
- At least 10MB disk storage dedicated to OBSERVER
- At least one supported DECnet Communication Device
- LA120 terminal or equivalent dedicated as the OBSERVER Control and Hard Copy Event Logging Terminal
- Two adjacent VT100 terminals with advance video option or equivalent, dedicated as the OBSERVER Operator Workstation
- 9-track 800 BPI Magtape to support installation and backup

Optional Hardware

- Any printer supported by the prerequisite software, for report printing

Prerequisite Software

One of the following:

- RSX-11M Operating System with DECnet-11M
- RSX-11M-PLUS Operating System with DECnet-11-PLUS

Optional Software

- DATATRIEVE

Training Credits

- None

Software Installation

- Digital Installed

Support Category

- Digital Supported

• OBSERVER

Ordering Information

OBSERVER is available only on 9-track 800 BPI Magtape (NRZI) distribution media. Option QSP20-AD is available only after the purchase of one QSP40-AD license.

QSP40-AD—	Single-use license, binaries, documentation, support services, plus consulting services including: preinstallation assistance, post installation orientation, and a network performance review session. Specifics on the consulting service will be provided as part of the Customer Support Plan.
-----------	--

QSP20-AD—	Single-use license, binaries, documentation, support services
-----------	---

QSP20-DZ—	Single-use license-only option, no binaries, no documentation, no support services.
-----------	---

Update/Unsupported Options

Users of OBSERVER who specified Support Category warranty has expired may order under license the following software option as an update to an earlier version. The option may also be purchased for use on a second or subsequent CPU, in conjunction with a single-use, license-only option. Options are distributed in binary form on the appropriate medium and include no installation or other services unless specifically stated.

QSP20-HD—	Binaries, documentation.
-----------	--------------------------

QSP20-HZ—	Right-to-copy for single-use, no binaries, no documentation.
-----------	--

Miscellaneous Option

QSP20-GZ—	Documentation-only kit.
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• DECnet-VAX, VAX/VMS Network Software (Full Function and End Note)

Minimum Hardware Required

Any valid VAX/VMS system configuration with one of the following communication devices:

- DEUNA-AA
Ethernet controller interface
 - DMC11-AR,-DA
remote synchronous interface V.24/EIA RS-232-C
 - DMC11-AL,-MD
high speed local synchronous interface
 - DMC11-AL,-MA
high speed local synchronous interface
-

-
- DMC11-AR,-FA
CCITT V.35 synchronous interface, speed up to 250 kilobits/second
 - DMR11-AA
remote synchronous interface, V.24/EIA RS-232-C
 - DMR11-AB
CCITT V.35 synchronous interface, speed up to 1,000 kilobits/second (clocked by modem)
 - DMR11-AE
EIA RS-422 synchronous interface, speed up to 1,000 kilobits/second (clocked by modem)
 - DMP11-AA
EIA RS-232-C up to 19.2 kilobits/second or RS-423-A (up to 56 kilobits/second) synchronous communication interface
 - DMP11-AB
CCITT V.35 synchronous communication interface. Maximum data rate 56 kilobits/second.
 - DMP11-AC
Local synchronous communication interface with integral modem (switch selectable speeds: 56, 250, 500 or 1000 kilobits/second). Maximum data rate 500 kilobits/second FDX or 1000 kilobits/second HDX.
 - DMP11-AE
RS-422A remote synchronous communication interface. The maximum data rate is 1000 kilobits/second.
 - DMF32-AA,-AB
Synchronous line support for EIA RS232-C or RS-423-A interface up to 19.2 kilobits/second.
 - C1780-AA,-AB
Interconnect for VAX-11/780 and 11/782 systems within a maximum distance of 90 meters. The effective maximum data rate of the C1780 using DECnet-VAX is limited to 1000 kilobits-second between any pair of nodes.
 - VAX-11 PSI
Consult the VAX-11 PSI SPD (25.40.xx) for supported communications interfaces
-

NOTE

The following RS-422/423 signals are not supported by the DECnet-VAX or VAX/VMS software:

-
- NS—New Signal
 - SR—Signaling Rate Selector
 - LL—Local Loopback
 - RL—Remote Loopback
 - SS—Select Standby
-

Optional Hardware

-
- Additional communication devices from the above, up to the maximum defined in the Configuration and Performance section, but not to exceed the maximum defined in the Communications Devices section of the VAX/VMS SPD (25.01.xx).
-

Prerequisite Software

-
- VAX/VMS Operating System
-

Optional Software

-
- VAX DATATRIEVE
 - VAX PSI
-

Training Credits

-
- No training credits are included with a DECnet software license. Training courses on DECnet software are scheduled at regular intervals in Digital's Training Centers. Arrangements should be made directly with Digital's Educational Services Department.
-

Software Installation

-
- Optional Digital installation is recommended for this software product. Digital recommends that only those customers who have sufficient technical resources should attempt its installation without Digital's assistance.
 - Digital Installation Service is available, provided the customer requests this service within 30 days of product delivery (F.O.B. Digital plants).
-

Support Category

- Digital Supported

Prerequisite Support

- A Network Profile and DECnet Customer Support Plan covering all intended network nodes and their support may be required.

- **DECnet-VAX**

Ordering Information

Options	Systems		
	VAX-11/725 VAX-11/730	VAX-11/750	VAX-11/780 VAX-11/782*
License Options: A license is required for each CPU			
Single-Use License	QCD04-UZ	QDD04-UZ	QED04-UZ
VAXcluster License		QDD04-QZ	QED04-QZ
Materials and Service Options:			
Distribution and Documentation Option	QCD04-HG	QDD04-HG	QED04-HY
Software Revision Right-To-Copy Option	QCD04-HZ	QDD04-HZ	QED04-HZ
Installation Service Option	QCD04-IG	QCD04-IG	QED04-IY
Software Product Service Agreements:			
DECsupport Service	QCD04-9G	QDD04-9G	QED04-9Y
Basic Service	QCD04-8G	QDD04-8G	QED04-8Y
Self-Maintenance Service	QCD04-3G	QDD04-3G	QED04-3Y

*For software licensing purposes, a VAX-11/782 is a multiprocessor that is considered a single CPU.

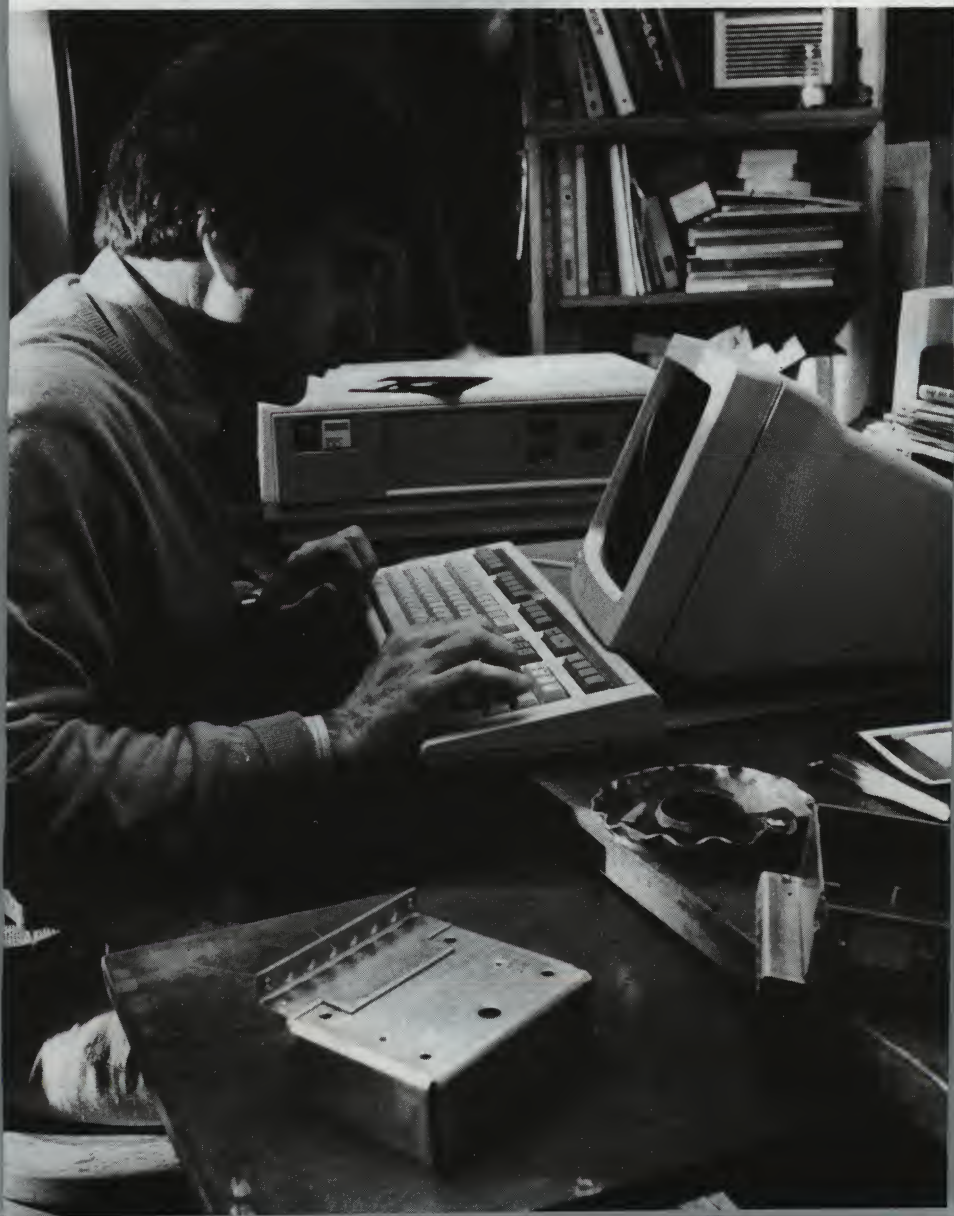
The distribution Media Codes used in the Software Options Chart are described above. You specify the desired Media Code at the end of the Order Number, e.g., QCD05-HG = binaries on TU58 DECTape II Cartridge.

G = TU58 DECTape II Cartridge** Z = No hardware dependency
Y = RX01 Floppy Diskette

**The TU58 is to be used in a stand-alone, lightly loaded environment. If used as a file device in a heavily loaded environment, it can degrade system performance.

Note: the above listed ordering chart has been altered by the Day 0 Program. See your Digital Sales Representative for complete pricing and offerings available on this product through the Day 0 Program.

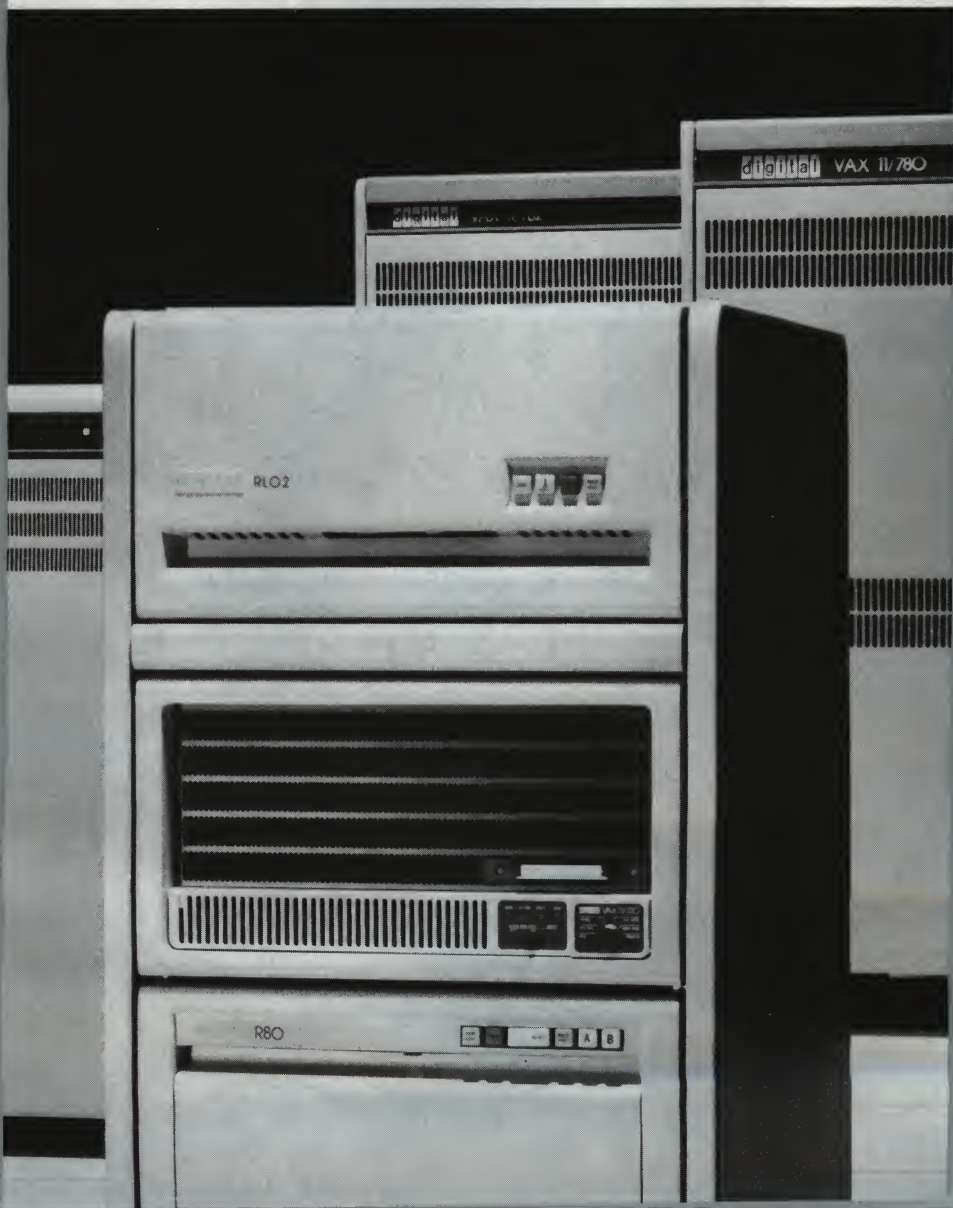
Chapter 4 • Systems, Office Workstations, Storage, and Printers



Digital's broad range of systems, office workstations, and printers support the software covered in preceding chapters of this handbook. Together, these products compose the ALL-IN-1 Office and Information System.

Your local Digital Sales and Service team can help you determine your hardware and software needs. They have the tools, expertise, and experience to identify, with you, your business problem and help solve it with the Digital products that best satisfy both your immediate and long-term requirements. You can install only what you need today with the assurance that expanding later will be a straightforward and nondisruptive process. One or several smaller systems or one large system are choices. You can install distributed processing equipment initially or plan on it as a growth strategy. The options are many. The important point is that with Digital's product families, our wide spectrum of office workstations, and full selection of printers, you can design your office systems to fit all your needs.

Section 1 • VAX Systems Family



Digital has a long history of producing families of computer systems that offer a wide range of compatible, reliable, and cost-effective hardware and software. As technology or market needs dictate, Digital adds additional members to these families.

VAX Computer Systems

The VAX family of computer systems is an excellent example of Digital's computer family concept. VAX family members include the VAX 8600, VAX-11/785, VAX-11/780, VAX-11/782, VAX-11/750, VAX-11/730, VAX-11/725, MicroVAX I. The VAX 8600, VAX-11/785, VAX-11/780, and VAX-11/750 systems can be incorporated into VAXclusters. The family concept has significant advantages:

- You can install the system that will do the job best, without buying excess capacity.
- To meet changing organizational or capacity requirements, your office system can be expanded by adding more systems, or larger systems, without disruption. This protects your investment in applications development and software.
- Applications written on one VAX system can run on any other VAX family member with no change, providing flexibility of development and deployment.
- All family members take full advantage of the powerful and flexible VMS virtual memory operating system, the VAX Information Architecture, and Digital Network Architecture.
- You are always assured of the most cost-effective solution without limiting growth, and can have optimal price and performance at any stage of growth.
- Digital's full line of office workstations, printers, and storage devices can be connected to all VAX systems allowing each system to be configured to meet the specific needs of the users it serves.
- VAXclusters offer modular, cost-effective growth by letting departmental systems and organization-wide systems expand as needed.



• VAX 8600

In our most powerful single-processor VAX, which supports several hundred users, we've used advanced technology to improve performance and reliability while retaining a small cabinet size. The VAX 8600 system uses advanced internal processor structures, previously found only in mainframe systems, to overlap processing of up to four instructions simultaneously. The result is a system with up to 4.2 times the performance of the VAX-11/780.

Configuring your VAX 8600 into a VAXcluster gives those who need it access to your data, protects valuable data because you have access through several processors, and provides you with the highest-performance VAX system available. The Terminal Server in a VAXcluster allows a user to continue working on a second processor if one processor becomes unavailable. With a single keystroke, work can be continued on a second VAX that offers the same capabilities so that no time is lost. New methods of error logging, analysis, and recovery, formerly used only in much larger machines, have been built into the VAX 8600. This is especially important when several systems support your organization, as in a VAXcluster configuration.

The VAX 8600 CPU also features an optional floating-point accelerator and memory that can be increased to 32 Mbytes without an expansion cabinet. The Synchronous Backplane Interconnect (SBI) connects the processor to the I/O adapters. The flexible interconnect structure (with one standard and one optional SBI) allows the choice of CI, UNIBUS, or MASSBUS adapter products.

Like the members of the VAX-11/780 series, the VAX 8600 can function compatibly with other processors that you may already own. Digital's DECnet networking software not only links Digital systems through Ethernet, leased lines, standard telephone lines, and public-wide area networks, but the DECnet/SNA gateway allows connection with systems in an IBM SNA environment, as well.

Now, you can stay in the VAX/VMS environment, even when running the large programs that always had to be transported to large scale systems. Your programmers won't lose time rewriting code or adding special instructions for another vendor's system. Watch your computing strategy pay off when all users access the same databases, know the same operating system, and use the same effective and efficient networking and storage architectures of VAX/VMS systems.

• **VAX-11/785**

The added performance and variety of VAX-11/785 configurations make it the choice for demanding applications. Serving more than 100 users, the VAX-11/785 can act as the host for your office network, as a member of a VAXcluster, or as a powerful 32-bit standalone processor.

The performance of the VAX-11/785 has been increased over the performance of the VAX-11/780 through advances in circuit design. These advances speed data flow through the processor, improving response time for realtime and office information applications, and increasing the capacity for computation in compute-bound applications. In commercial timesharing applications you can add more users.

Floating-point G and H data types and writable control store are standard on the VAX-11/785 system. As an option, you can add the floating-point accelerator for greater performance in numeric-intensive environments.

The 32-Kbyte cache memory holds more data and is updated less frequently than the cache in other processors, adding to the performance advantage. The large cache size benefits users running CAD/CAM applications and simulations in which programs contain many complex subroutines.

• VAX-11/780

The original member of the VAX family, the VAX-11/780 meets a wide range of application and user requirements. These include:

- Corporate or departmental mail systems with a large number of ad hoc users
- Department application systems that support a large number of concurrent users
- Target growth system in VAXcluster environment for large departmental or organizational applications
- Corporate or departmental database systems, networked to other computer systems
- Full-service departmental ALL-IN-1 office systems
- Systems that are networked to other family members for distributed processing or to increase overall system capacity and response

• VAX-11/782

Consisting of two VAX-11/780 processors, the VAX-11/782 is a tightly coupled master-slave system. The VAX-11/782 is designed for compute-intensive environments where the additional VAX-11/780 slave CPU provides a cost-effective growth path for single systems. Examples of VAX-11/782 systems are:

- Application development systems, in which programmers are engaged in compilations and interactive debug sessions
- Application systems in which users require heavy computation modeling and simulation

• VAX-11/750

In an office environment, the VAX-11/750 exhibit between 60 and 65 percent of the power of a VAX-11/780. It is packaged for the office, requiring minimal environmental control. Typical installations include:

- Departmental mail systems (networked to VAX or other systems)
- Distributed system nodes to provide general office functions and access to other systems
- Departmental or group ALL-IN-1 office systems
- Single application systems to support a specific business unit
- Node on a VAXcluster to support distributed computing

• **VAX-11/730**

In an office environment, providing about 25 to 30 percent of the power of a VAX-11/780, the VAX-11/730 is attractively packaged for the office, requiring minimal environmental control and floor space. Examples of typical installations are:

- Nodes on corporate or departmental mail systems
- Team computing system
- ALL-IN-1 office capability for a small field office
- Host for a personal computer cluster to provide communications and information management functions

• **VAXclusters**

VAXclusters offer manageable, modular growth for existing customers as well as large "computer center" style systems for big applications. VAXclusters, with high-speed CI780 and CI750 ports and HSC50 intelligent mass storage controllers, provide cost effective growth and:

- Add-on computer power with minimal additional disk investment
- A growth path when a department grows beyond a single system
- Corporate-level computing

• **VAX-11/725**

The VAX-11/725 provides the CPU power of the VAX-11/730 in an under-the-desk package. The VAX-11/725 is bounded supporting up to eight users and up to 104 Mbytes of disk storage. Although the VAX-11/725 currently does not support the ALL-IN-1 Office Menu, it is being considered for future ALL-IN-1 enhancements.

• **MicroVAX 1**

The MicroVAX 1 offers approximately 30 percent of the VAX-11/780 CPU performance in a micro-sized package. Initially, the MicroVAX is targeted at realtime applications for the OEM market. The MicroVAX will be the foundation for future VAX-based team computing as the necessary software becomes available.

VAX Systems Family

Product Specifications and Ordering Information

VAX 8600	4-10
VAX-11/785	4-12
VAX-11/782	4-15
VAX-11/780	4-17
VAX-11/750	4-19
VAX-11/730	4-21
VAX-11/725	4-23
VAXcluster Systems	4-24
SC008 Star Coupler	4-27
MicroVAX 1	4-29

• VAX 8600

VAX 8600 Specifications

Processor	
Microcontrol store instruction time	80ns
Control Store size	8K words—86 bits
Internal data path	32 bits
Instruction Buffer Size	8 Byte—lookahead
Memory Cache	16K byte write-back
VAX Instruction Set	
Number of 32-bit registers	16
Number of basic operations	304
Number of priority interrupt levels	32
Number of addressing modes	9
Data types	Integer, packed decimal, floating point (F,D,G,H) character string, variable bit fields, numeric string
Main Memory	
Virtual address capacity	4Gbytes
Physical capacity	32M Bytes in 4M Byte increments
Parity	7-bit ECC per 32-bit longword
Memory cycle time	560ns per 128-bit read
Operating Environment	
Temperature	15-32°C (59-90° F)
Relative humidity	20-80%
Maximum altitude	2,400m (8,000 ft)
Maximum heat dissipation	22,000 Btu/h

Processor Power Requirements

AC line voltage	120/208 volts
Frequency	47-63Hz
Also available	240/415 volts
Phases	3
Maximum power consumption	6,500 watts/10 KVA
Physical Characteristics	
Height	153.7 cm (60.5 in)
Width	186.7 cm (73.5 in)
Depth	76.2 cm (30 in)
Weight	782.1 kg (1,725 lbs.)

• **VAX 8600****Ordering Information****CONFIGURATIONS**

The VAX 8600 is announced as two System Building Blocks:

861CB-AE/AJ	Preconfigured 8600 VAXcluster System Building Block
861CB-AP/AT	Preconfigured 8600 VAXcluster Upgrade

The following is common to each of the above:

In the main CPU cabinet:

CPU

Console Processor

3 MS86-BA	4M Byte memory arrays (12M Bytes total)
FP86-AA	Floating Point Accelerator
DW780-MA	First UNIBUS Adapter
DB86-AA	First SBI Adapter
CI780-MA	Computer Interconnect Adapter
BNCIA-20	CI cables
QK001-UZ	VMS License

In the attached Console/UNIBUS cabinet:

RL02	10M Byte Console disk
BA11-Ax	UNIBUS box fully populated with the following:
1 DMF32-LP	8 Async lines, LP interface, Sync line
1 DEUNA	Ethernet Interface
4 DMZ32-M	Multiplexer boards for an additional 96 async lines

861CB-AE/AJ consists of:

The above common components plus:

SC008-AC	Star Coupler
HSC50-AA/AB	Storage Controller
HSC5X-BA	Disk interface
HSC5X-CA	Tape interface
BNCIA-20	CI cables
QKD05-UZ	DECnet full license

861CB-AP/AT consists of:

The above common components plus:

QKD05-QZ	DECnet cluster license
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• **VAX 11/785**

VAX 11/785 Specifications

Processor	
Microcontrol store instruction time	133ns
Control store size	8K words (.5 ROM, 7.5K Read/Write—including 1K reserved for UCS)
Internal data path	32 bits
Maximum system I/O rate	13.3 Mbytes/sec
Instruction buffer size	8-byte lookahead
Memory cache	32Kbytes, 2-way set associative

VAX Instruction Set

Number of 32-bit registers	16
Number of basic operations	304
Number of priority interrupt levels	32
Number of addressing modes	9
Data types	Integer, floating point (G and H), packed decimal, character string, variable bit fields, and numeric strings

Main Memory

Virtual address space	4Gbytes
Physical expansion	32Mbytes in 2Mbyte increments (plus 4 Mbytes multiport memory for 36 Mbyte maximum)
Parity	8-bit error correcting code per 64-bit quadword
Cycle times	600 ns per 64-bit read (700 ns with single bit errors), 700 ns per 64-bit write

Operating Environment*

Temperature	15-32°C (59-90°F)
Relative humidity	20-80%
Maximum altitude	2,400 m (8,000 ft)
Maximum heat dissipation	2,166 kcal/h (8,530 Btu/h)

Processor Power Requirements*

AC line voltage	120/208 V
Frequency tolerance	59-61 Hz
Phases	3
Also available	240/415 V 50 Hz
Maximum AC power consumption	2,500 W

Physical Characteristics*

Weight	498 kg (1,100 lbs)
Height	153.7 cm (60.5 in)
Width	118.1 cm (46.5 in)
Depth	76.2 cm (30 in)

• VAX 11/785

Ordering Information

Preconfigured System

Model No.	Description
785CB-AE	11785 QE001-UZ 2MB 64K 120/60

Marketing Description:

11/785 CPU 2MB (64K) memory, CI780-AA Interconnect Port, SC008 Star Coupler, Two BNCIA-20 (8 CI Cables), HSC50-AA 4 SDI Disk Int. 2X, MS780-FC 6MB Memory Expansion, TEU78-FB Magtape Unit with Controller, RA81-EA (3) RA81 Disks with Cabinet, LA120-DA Console Terminal, (2) DM32-LP Multi-function Line Units, UNIBUS Cab. W/BA11-K Box and DD11-DK, QE001-UZ VAX/VMS License.

System Building Blocks

Model No.	Description
785CA-AE	11785 QE001-UZ 2MB 64K 120/60
785CA-AJ	11785 QE001-UZ 2MB 64K 240/50

Marketing Description:

11785 CPU 2MB (64K) memory, CI780 Interconnect Port, SC008 Star Coupler, Two BNCIA-20 (8 CI Cables), HSC50-AA(AB) Storage Controller, HSC5X-AA(AB) 4 SDI Disk Int. 2X, UNIBUS Cab. W/BA11-K Box and DD11-DK, QE001-UZ VAX/VMS License.

Model No.	Description
785CA-AP	11785 QE001-UZ 2MB 64K 120/60
785CA-AT	11785 QE001-UZ 2MB 64K 240/50

Marketing Description:

11785 CPU 2MB (64K) memory, CI780 Interconnect Port, BNCIA-20 (4 CI Cables), UNIBUS Cab. W/BA11-K Box and DD11-DK, QE001-UZ VAX/VMS License.

Model No.	Description
785XA-AE	11785 CPU 2MB QE001-UZ 120/60
785XA-AJ	11785 CPU 2MB QE001-UZ 240/50

Marketing Description:

11785 CPU 2MB (64K) memory, UNIBUS Cab. W/BA11-K Box and DD11-DK, QE001-UZ VAX/VMS License.

Model No.	Description
785XA-BE	11785 CPU 2MB QE821-UZ 120/60
785XA-BJ	11785 CPU 2MB QE821-UZ 240/50

Marketing Description:

11785 CPU 2MB (64K) memory, UNIBUS Cab. W/BA11-K Box and DD11-DK, QE821-UZ ULTRIX License.

Model No.	Description
FP785-AA	Flt. Pt Proc 11/785 120 V
FP785-AB	Flt. Pt Proc 11/785 240 V

Marketing Description:

Floating-point Accelerator Board, set includes power supply. Note: This option will not run on an 11/780.

• VAX-11/782 Computer System

VAX-11/782 Specifications

Processor	
Microcontrol store instruction time	200 nanoseconds
Control store size	5 Kwords (99-bit words), 4 Kwords read only memory and 1 Kwords user control store
Internal data path	32 bits
Maximum system I/O rate 13.3 MB/s	
Instruction buffer size	8-byte lookahead
Memory cache	8 KB, 2-way set associative
VAX Instruction Set	16 32-bit registers
32 priority interrupt levels	
248 basic operations	9 addressing modes
Data types: Integer, floating point, packed decimal, character string, variable bit fields, and numeric strings	

Memory

Physical expansion	8 MB shared memory
Parity	8-bit error correcting code per 64-bit quadword
Cycle times	800 nanoseconds per 64-bit read (1300 nanoseconds with single-bit errors)
	1400 nanoseconds per 64-bit write

Primary Processor I/O UNIBUS Adapter

Maximum UNIBUS I/O rate	1.5 MB/s through buffered data paths
Buffered data paths	15 total, 8-byte total in each
Processor Power Requirements	These specifications are given for a single VAX-11/780 processor only
AC line voltage	120/280 V
Frequency tolerance	59-61 Hz
Phases	3
Also available	220/380 V 50 Hz, 240/415 V 50 Hz
Maximum AC power consumption	6225 W
Physical Characteristics	These specifications are given for a single VAX-11/780 processor only
Weight	498 kg (1100 lbs)
Height	153.7 cm (60.5 in)
Width	118.1 cm (46.5 in)
Depth	76.2 cm (30 in)
Operating Environment	These specifications are given for a single VAX-11/780 processor only
Temperature	15° to 32°C (59° to 90°F)
Relative humidity	20 to 80%
Maximum altitude	2.4 km (8000 ft)
Maximum head dissipation	5350 kcal/h (21,230 Btu/H)

• VAX-11/782
Ordering Information

782XA-AE(AJ)—	VAX-11/782 Dual CPU 4 MB ECC MOS Shared Memory H9652 UNIBUS Expansion Cabinet with BA11-K and DD11-K VAX/VMS License only
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In addition, you must order a Mass Storage device, a Communications device and a Console Terminal. A Software Selection is optional.

• VAX-11/780 Computer System**VAX-11/780 Specifications**

I/O UNIBUS Adapter	
Maximum UNIBUS I/O rate	1.5 MB/s through buffered data paths
Buffered data paths	15 total, 8-byte total in each
Processor Power Requirements	These specifications are given for the VAX-11/780 processor only
AC line voltage	120/280V
Frequency tolerance	59-61 Hz
Phases	3
Also available	220/380 V 50 Hz
	240/415 V 50 Hz
Maximum AC power consumption	6225 W
Physical Characteristics	These specifications are given for the VAX-11/780 processor only
Weight	498 kg (1100 lbs)
Height	153.7 cm (60.5 in)
Width	118.1 cm (46.5 in)
Depth	76.2 cm (30 in)
Operating Environment	These specifications are given for the VAX-11/780 processor only
Temperature	15° to 32°C (59° to 90°F)
Relative humidity	10 to 80%

Maximum altitude	2.4 km (8000 ft)
Maximum heat dissipation	5350 kcal/h (21,230 Btu/h)
Processor	
Microcontrol store instruction time	200 nanoseconds
Control store size	5K words (99-bit words), 4K words read only memory and 1K words user control store
Internal data path	32 bits
Maximum system I/O rate	13.3 MB/s
Instruction buffer size	8-byte lookahead
Memory cache	8 KB, 2-way set associative
VAX Instruction Set	
16 32-bit registers	32 priority interrupt levels
248 basic operations	9 addressing modes
Data types: Integer, floating point, packed decimal, character string, variable bit fields, and numeric strings	
Main Memory	
Virtual address space	4 gigabytes
Physical expansion	8 megabytes in 256 KB increments (plus 4 megabytes multiport memory)
Parity	8-bit error correcting code per 64-bit quadword
Cycle times	800 nanoseconds per 64-bit read (1300 nanoseconds with single-bit errors)
	1400 nanoseconds per 64-bit write

• ALL-IN-1 VAX 11/780 Starter Packages (2)

Ordering Information

1.RA60 Distribution = E78VS-CA

1 MS780-FA (2 Mbyte)

1 QE902-AJ (RA60 DIST)

1 QE001-HJ (RA60 DIST)

1 QE001-AZ I&W

1 QE400-AJ VAX DECmail

1 QE708-AY DXT/VMS

• ALL-IN-1 VAX 11/780 Starter Packages Ordering Information

2.9 Track Magtape Distribution = E78VS-DA

1	MS780-CA (2 Mbyte)
1	QE902-AM (9TRK DIST)
1	QE001-HM (16MT9)
1	QE001-AZ I&W
1	QE400-AM VAX DECmail
1	QE708-AY DXT/VMS

• VAX-11/750 Computer System

VAX-11/750 Specifications

Processor

Micro-control store instruction time	320 nanoseconds
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Control store size	6 Kwords (80-bit words, read only memory)
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Internal data path	32 bits
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Maximum system I/O rate	5 MB/s
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Instruction buffer size	8-byte lookahead
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Memory cache	4 KB direct mapped
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VAX Instruction Set

16 32-bit registers	
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248 basic operations	
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56 optional instructions	
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32 priority interrupt levels	
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9 addressing modes	
--------------------	--

Data types: Integer, floating point, packed decimal, character string, variable bit fields, numeric strings	
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Main Memory

Virtual address space	4 gigabytes
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Physical expansion	2 megabytes in 256 Kbyte increments
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Parity	7-bit error correcting code per 32-bit longword
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Cycle times	800 nanoseconds per 32-bit read
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	640 nanoseconds per 32-bit write
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I/O UNIBUS Adapter

Maximum UNIBUS I/O rate	1.5 MB/s through buffered data paths
Buffered data paths	3 total, 4-byte buffer in each
Power Requirements	These specifications are given for the VAX-11/750 processor only
Maximum AC line voltage tolerance	90-128 or 180-256 V
Frequency tolerance	47-63 Hz
Phases	1
Surge current	100 A
Maximum AC power consumption	1700 W
Physical Characteristics	These specifications are given for the VAX-11/750 processor only
Weight	182 kg (400 lbs) maximum
Height	106.2 cm (41.8 in)
Width	73.7 cm (29.0 in)
Depth	76.3 cm (30.0 in)
Operating Environment	These specifications are given for the VAX-11/750 processor only
Temperature	10° to 40°C (50° to 104°F)
Relative humidity	10 to 90%
Maximum altitude	2.4 km (8000 ft)
Heat dissipation	1460 kcal/h (5800 BTU/h)

• **ALL-IN-1 VAX 11/750 Starter Packages (2)**

Ordering Information

1	RA60 Distribution = E75VS-CA
1	MS750-CA (1 Mbyte)
1	QD901-HJ
1	QD001-AZ
1	QD902-AJ OFFICE MENU
1	QD400-AJ VAX DECmail
1	QD708-AG DXT/VMS

• ALL-IN-1 VAX 11/750 Starter Packages Ordering Information

2.9 Track Magtape Distribution = E75VS-CA

1 MS750-CA (1 Mbyte)

1 QD001-HM

1 QD001-AZ

1 QD902-AM OFFICE MENU

1 QD400-AM DECmail

1 QD708-AG DXT/VMS

• VAX-11/730 Computer System

VAX-11/730 Specifications

Processor

Micro-control store instruction time 270 nanoseconds

Control store size 16 K words (24-bit words)
17 K words with the IDC

Internal data path 32 bits

Instruction buffer size 4-byte lookahead

VAX Instruction Set

16 32-bit registers

304 basic operations

90 instructions accelerated by the FP730 option

32 priority interrupt levels

13 addressing modes

Data types: Integer, floating point, packed decimal, character string, variable bit fields, numeric strings

Main Memory

Virtual address space 4 GB

Physical expansion Up to 5 MB in 1 MB increments

Parity 7-bit error correcting code per 32-bit longword

Memory cycle time 810 nanoseconds Read/Write

I/O UNIBUS Adapter

Maximum UNIBUS I/O rate	1.5 MB/s
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Power Requirements	These specifications are given for the VAX-11/730 processor only
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Specifications for 60 Hz systems are listed first: 50Hz systems are in parenthesis

Maximum	Dual RL02 System	RL02/R80 System
AC line voltage tolerance	90-128V (180-256V)	90-128V (180-256V)
Frequency tolerance	47-63Hz(47-63Hz)	60Hz 1Hz(50Hz1Hz)
Phases	1 (1)	1 (1)

	Box	Dual RL02 System	RL02/R80 System
Surge current	15 amps	20 amps	32 amps
	(90V RMS)	(90V RMS)	(90V RMS)
	7.5 amps	10 amps	12 amps
	(180V RMS)	(180V RMS)	(180V RMS)
Maximum AC power consumption	470 watts	790 watts	1205 watts

Mechanical

	Box	Dual RL02	RL02/R80
Weight (max.)	45.4 kg	227.0 kg	249.7 kg
	(100 lbs)	(500 lbs)	(550 lbs)
Height	26.6 cm	106.2 cm	106.2 cm
	(10.5 in)	(41.8 in)	(41.8 in)
Width	47.0 cm	54.1 cm	54.1 cm
	(18.5 in)	(21.3 in)	(21.3 in)
Depth	66 cm	80.0 cm	80.0 cm
	(26.6 in)	(31.5 in)	(31.5 in)
Operating Environment	These specifications are given for the VAX-11/730 processor only		

Temperature 10° to 40°C (50° to 104°F)

Relative humidity 10 to 90%

Maximum altitude 2.4 km (8000 ft.)

	Box	Dual RL02 System	RL02/R80 System
Heat dissipation	403.2 Kcal/hr (1603 Btu/hr)	756.0 Kcal/hr (2694 Btu/hr)	1260.0 Kcal/hr (4109 Btu/hr)

• ALL-IN-1 VAX 11/730 Starter Packages (2) Ordering Information

1.RA60 Distribution = E73VS-CA

- 1 MS730-CA (2 Mbyte)
- 1 QC902-AJ OFFICE MENU
- 1 QC001-HJ VMS PACK & DOC
- 1 QC001-AZ
- 1 QC400-AJ VAX DECmail
- 1 QC708-AG DXT/VMS

• ALL-IN-1 VAX 11/730 Starter Packages Ordering Information

2.9 Track Magtape Distribution = E73VS-DA

- 1 MSR730-CA (1 Mbyte)
- 1 QC902-AM OFFICE MENU
- 1 QC001-HM VMS PACK & DOC
- 1 QC001-AZ
- 1 QC400-AM VAX DECmail
- 1 QC708-AG DXT/VMS

• VAX-11/725 Systems

VAX 11/725 Specifications

Power required	20 amp dedicated power
Height	24.5 in. (62.23 cm)
Width	17.5 in. (44.45 cm)
Depth	28.5 in. (72.39 cm)

• VAX-11/725

Ordering Information

SV-CXNZ-A-EA(ED)—	VAX/VMS QC001-A4. Dedicated backplane slot for FP730, data path, memory controller, worktable control store, 1 MB ECC MOS memory, slot dedicated for a second MB ECC MOS memory, 4 Hex slots for Unibus options.
SV-CXNZ-A-EK(EN)—	VAX/VMS license QC001-DZ.
SV-CXNZ-B-EA/ED—	Same as above, except: 2 MB ECC MOS memory, 3 Hex slots for Unibus options, and a dedicated slot for DMF32 multi-function controller.
SV-CXNZ-B-EK(EN)—	VAX/VMS license QC001-DZ.
SV-CXNZ-C-EA(ED)—	Same as above except: an FP730 floating point accelerator, 2 MB ECC MOS memory, 1 Hex slot for Unibus option, two DEUNA modules, and a DMF-32 multi-function controller.
SV-CXNZ-C-ED(EN)—	VAX/VMS license QC001-DZ.

In addition, you must purchase either a VT100, VT125, LA100 or LA120 console device.

• VAXcluster Systems

C1750/C1780 Specifications

Data Format	Manchester-encoded serial data packets
Data Transfer Rate	70 Mbits per second maximum
Data Throughput	C1750—up to 2.4 Mbytes per second sustained C1780—up to 3.0 Mbytes per second sustained
Modes	Uninitialized Uninitialized/Maintenance Disabled Disabled/Maintenance Enabled Enabled/Maintenance
Priority Levels	
C1750	ARB 1,2,3 (CMI) BR4
C1780	TR14 (SBI) BR4
CI Cluster Cabling	Dual-path, Half-duplex BNCIA double shielded coaxial cables, 45 meters (147.6 ft.) maximum

Power Requirements

C1750-BA	ac Power—120V, 60 Hz (nominal)
	Line Voltage—90-128 Vrms
	Frequency—47.63 Hz
	Phases—single
	Steady-state current—7.5A at 120 VAC
	Plug type—L5-30P
	Cable length—3m (9.84 ft)
C1750-BB	ac Power—240V, 50 Hz (nominal)
	Line voltage—180-256 Vrms
	Frequency—47.63 Hz
	Phases—single
	Steady-state current—4.2A at 240Vac
	Plug type—(varies by country)
	Cable length—3m (9.84 ft)
C1750 (CCI) Module	5 Vdc at 11.0A
C1780-AA	ac Power—120V, 60 Hz (nominal)
	Line voltage—90-128 Vrms
	Frequency—47-63 Hz
	Phases—single
C1780-AB	ac Power—240V, 50 Hz (nominal)
	Line voltage—180-256 Vrms
	Frequency—47-63 Hz
	Phases—single
Operating Environment	
Temperature	10°C to 40°C (50°F to 104°F) with a temperature gradient of 20° C/hour (36°F/hour)
Relative Humidity	10% to 90% with a wet bulb temperature of 28°C (82°F) and a minimum dew point of 2°C (36°F)
Altitude	Sea level to 2400 meters (8000 ft)
	Derate the maximum allowable operating temperature by 1.8C/1000 meters (1°F/1000 feet) for operation above sea level

• **VAX-11/782 VAXcluster**
Ordering Information

- 782CA-AE(AJ)— Components
- VAX-11/782 Dual CPU
 - 4 MB (16K Chip) shared ECC MOS memory
 - C1780-AA(AB) (120V/240V) Computer interconnect
 - SC008-AC Star Coupler
 - Two BNCIA-20 20 m (60 ft) CI cables (total of eight cables)
 - HSC50-AA(AB) Intelligent disk/tape server
 - HSC5X-BA Interface to four SDI disks
 - HSC5X-CA Interface to four STI tapes
 - QE001-DZ VAX/VMS operating system software license
 - H9652-MA(MB) 60 in (106 cm) high UNIBUS Expansion Cabinet with BA11-K expander box and DD11-DK backplane

In addition, you must order a Load Device, a System Device, a Console Terminal, a Communications I/O adapter, and a VMS Software package.

• **VAX-11/782 VAXcluster Upgrade**
Ordering Information

- 782CA-AP(AT)— Components
- VAX-11/782 Dual CPU
 - 4 MB (16K Chip) shared ECC MOS memory
 - H9652-MA(MB) cabinet
 - C1780-AA(AB) computer interconnect
 - Two BNCIA-20 20 m (60 ft) CI cables (total of eight cables)
 - QE001-DZ VAX/VMS operating system license

In addition, you must order a Communications I/O adapter and a Console Terminal; a System Device is optional.

• **VAX-11/780 VAXcluster**
Ordering Information

- 780CA-(AE)(AJ)— Components
- VAX-11/780-EA(ED)
 - 2 MB (64K Chip) ECC MOS memory
 - C1780-AA(AB) (120V/240V) computer interconnect
 - SC008-AC Star Coupler
 - Two BNCIA-20 20 m (60 ft) CI cables (total of eight cables)
 - HSC50-AA(AB) Intelligent disk-tape controller
 - HSC5X-BA Interface to four SDI disks
 - HSC5X-CA Interface to four STI tapes
 - QE001-DZ VAX/VMS operating system license
 - H9652-MA(MB) 60 in (106 cm) high UNIBUS expansion cabinet with BA11-K expander box and DD11-DK backplane.

In addition, you must order a Load Device, a System Device, a Console Terminal, a Communications I/O adapter, and a VMS Software package.

• VAX-11/780 VAXcluster Upgrade

Ordering Information

780CA-AP(AT)—	Components
	<ul style="list-style-type: none"> • VAX-11/780-EA(ED) • 2 MB (64K Chip) ECC MOS memory • H9652 UNIBUS expansion cabinet • C1780-AA(AB) computer interconnect • Two BNCIA-20 20 m (60 ft) CI cables (total of eight cables) • QE001-DZ VAX/VMS operating system license

In addition, you must order a Communications I/O adapter and a Console Terminal; a System Device is optional.

• C1780/C1750

Ordering Information

C1780-AA,-AB—	C1780 adapter option including an H7100 power supply. The C1780-AA operates with 120 Vac input power operation and the C1780-AB operates with 240 Vac input power.
C1750-SA,-SB—	Dual node starter kit consisting of two C1780-AA,-AB adapters, one SC008-AC Star Coupler, and two BNCIA-10 coaxial cables.
C1780-BA,-BB—	C1750 adapter mounted in a 101.6 cm (40 in) height cabinet. The C1750-BA operates with 120 Vac input power and the C1750-BB operates with 240 Vac input power.
C1750-AA,-AB—	An expansion C1750 adapter for mounting into the cabinet supplied with the C1750-BA,-BB option or into a customer supplied FCC-compliant cabinet for use with the VAX-11/751 CPU. The C1750-AA operates with 120 Vac input power and the C1750-AB operates with 240 Vac input power.
C1750-SA,-SB—	Dual node starter kit contains two C1750-BA,-BB adapters, an SC008-AC star coupler unit, and two BNCIA-10 cables.

• SC008 Star Coupler

C008 Star Coupler Unit Specifications

Electrical Characteristics

I/O Connectors	Female TNC coaxial
Impedance	50 ohms
Bandwidth	1 to 100 Mhz
Isolation between I/O ports	30 db
Insertion loss (input to output)	20 db (input to output)

Nodes	
SC008-AC	Eight nodes, dual-path
SC008-AD	Provides eight additional nodes, dual-path, for SC008-AC
Physical Characteristics	
Cabinet size	
Height	40.0 in (101.6 cm)
Width	21.25 in (54 cm)
Depth	30.0 in (76.2 cm)
Connector panel size	
Height	8.75 in (22.2 cm)
Width	16 in (40.64 cm)
Depth	4.0 in (10.2 cm)
Weight	9.6 lbs (4.3 kg)
Environmental (MIL STD 202E)	
Operating and storage temperature	- 55° to 100°C (- 67°F to 212°F)
Operating humidity	95% relative

• SC008 Ordering Information

SC008-AC—	One A panel and one B panel. Eight node Star Coupler option with a dual-path connector panel in a 101.6 cm (40.0 in) high cabinet.
SC008-AD—	Eight to 16 node dual-path expansion kit for mounting in the SC008-AC unit.
SC008-AC and SC008-AD— (combined)	Two A panels and two B panels for up to 16 node dual-paths.

• Micro VAX 1

Micro VAX 1 Specifications

Power Supply

Rack-mountable system

Height	13.3 cm (5.25 in)
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Width	48.3 cm (19.0 in)
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Depth	63.5 cm (25.0 in)
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Weight	24.0 kg (53.0 lb)
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Watts	230
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Receptacles required	NEMA #5-15R (120VAC/60 Hz)
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	NEMA #6015R (240VAC/50 Hz)
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	36 amps at + 5VDC
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	7 amps at + 12 VDC230 watts overall
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Floor Stand System

Height	62.3 cm (24.5 in)
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Width	25.4 cm (10.0 in)
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Depth	68.5 cm (27.0 in)
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Weight	31.7 kg (70.0 lb)
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Watts	230
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Receptacles required	NEMA #5-15R (120VAC/60Hz)
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	NEMA #6-15R (240VAC/50Hz)
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Tabletop System

Height	15.2 cm (6.0 in)
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Width	54.6 cm (21.5 in)
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Depth	68.5 cm (27.0 in)
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Weight	29.4 kg (65.0 lb)
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Watts	230
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Receptacles required	NEMA #5-15R (120VAC/60Hz)
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	NEMA #6-15R (240VAC/50Hz)
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• **MicroVAX 1** **Ordering Information**

610QA-DE—	Rack-mountable MicroVAX 1 CPU with 512 Kbyte memory and VAXELan license.
610QA-XZ—	Same as above without license.
610QH-DE—	Floor stand/tabletop MicroVAX 1 with 512 Kbyte memory and VAXELan license.
610QH-XZ—	Same as above without license.
610QB-DE—	Rack-mountable MicroVAX 1 CPU with 512 Kbyte memory, 800 Kbyte diskette, 10 Mbyte disk and VAXELan license.
610QB-XZ—	Without license.
610QJ-DE—	Same as above in floor stand/table top model.
610QJ-XZ—	Without license.
610QC-DE—	Rack-mountable MicroVAX CPU with 1 Mbyte memory, 800 Kbyte diskette, 28 Mbyte disk and VAXELan license.
610QC-XZ—	Without license.
610QK-DE—	Same as above in floor stand/tabletop model.
610QK-XZ—	Without license.

MicroVAX 1 system options:

MSV11-PK—	256-Kbyte parity MOS memory.
MSV11-PL—	512-Kbyte parity MOS memory.
DZV11-DP—	Four-line asynchronous program-controlled multiplexer with modern control. It is a quad-size option for use on Q-bus processors.
DEQNA-KP—	Ethernet communications controller. It is used to connect a Q-bus processor to an Ethernet location network.

MicroVAX 1 upgrade options:

DLVJ1-LP—	Four-line asynchronous interface without modem control. It is a dual-size, double buffered module used to support up to four asynchronous devices on Q-bus processors.
RX50-AA—	2 x 400-Kbyte diskette subsystem.
RD51-A—	10-Mbyte fixed Winchester disk subsystem.
RD52—	28-Mbyte fixed Winchester disk subsystem.
RQDX1—	Disk controller.
DEQNA-M—	Ethernet communications controller module and documentation.
CK-DEQNA-KB—	12-inch cable and panel insert with 25-pin EIA connector for the DEQNA-M communications controller.

Section 2 • Office Workstations and Terminals



• **The Concept Behind Office Workstations**

Office Workstations must work well with VAX systems and be capable of offloading generic, character-intensive applications such as word processing, electronic mail, and spreadsheets. An Office Workstation must provide a consistent user interface along with the ability to handle user communications needs.

This means that the Office Workstation must be able to connect the user to the host system automatically, and exchange or retrieve requested information and functions. We describe this as working transparently and cooperatively with the host system.

Consider the Office Workstation as a VAX stretcher; it allows more users per VAX without degrading performance.

The terminal or workstation that provides office functions, or access to an ALL-IN-1 office system, or communications capability is an extremely important element of an office and information system. Users perceive the workstation as their "computer" for it is through the terminal/workstation that office functions are accomplished.

Digital's leadership as a terminal and workstation supplier is shown in six important areas:

- The design and manufacture of terminals. More Digital terminals are connected to computers than those of any other manufacturer (over 2,000,000).
- Personal computing. Digital offers the DECmate, Rainbow, and Professional series of personal computers.
- Packaged workstations that address the specific needs of office professionals. These include word processing for secretaries, computer-aided design for engineers, and spreadsheets and modeling for financial analysts.
- Compatibility across a wide range of terminal and workstation types. Word processing on a DECmate II or III uses the same user interface menu and Gold Key editing features as a VT220 terminal connected to a VAX-based ALL-IN-1 system.
- Communications. The Professional personal computer can use Digital's Network Architecture for communications.
- Ease of use. This is a key design criteria for all workstations (easy-to-learn, and easy-to-remember, easy-to-use menu-driven user interface).

Digital's broad selection of compatible workstations allows our customers to select the best workstation for each user, in terms of price per workstation, functions required, and local storage and computing capability required on the desk.

• Workstation Summary

VT220

Lowest-cost text terminal for the casual user of an ALL-IN-1 Office System

VT240/VT241

Lowest-cost graphics terminal for the casual user of an ALL-IN-1 Office System

DECmate Series

Lowest cost office workstation integrated with ALL-IN-1. Offers full-capability word processing. Rainbow industry standard applications are integrated with ALL-IN-1 generic office applications. They work transparently and cooperatively with VAX or in a standalone environment.

Professional

High-end office workstation integrated with ALL-IN-1 with distributed application capability.

Telephone

Access to both text and voice messages via DEC-talk.

• Digital's VT200 Family of Workstations

The VT200 family includes text-only, graphics, and text-in-either-monochrome-or color terminals. The VT200 workstation family does not offload functions from the host system. Since the VT200 family of workstations is dependent on the host system availability, users that fall into casual usage area or the application cannot be distributed to a workstation (offloaded from the host) this is an ideal workstation.

VT200, VT220

The VT200 family includes the highly reliable, user-friendly VT200 text-only conversational terminal. The VT220 monochromatic text-only terminal introduces an attractive new design that incorporates ergonomic features while maintaining full VT100 functionality—including VT52 emulation, advanced video features, built-in printer port, and U.S. or European modem controls.



International features of the VT220 include a multinational character set, universal power supply, and both 20 mA and EIA interfaces. These important features expand the flexibility and functionality of the VT220.

The keyboard has been designed to minimize keystrokes and streamline overall operations through such operator-oriented features as split-screen capability, bidirectional smooth-scrolling capability, double height and width characters, and reverse video. With these attributes the VT220 can meet nearly any application need.

VT240 and VT241

If you need graphics display capabilities in your video terminals, you can choose from two Digital graphics terminals. We offer the VT240 for black and white or monochromatic graphics, or the VT241.

The VT240 is a monochromatic graphics/text terminal. The VT241 is a VT240 with a 13-inch color display monitor. Both the VT240 and the VT241 incorporate all the capabilities and features found in the VT200 family. These capabilities include a built-in printer port to allow for the integration of a series of printers, advanced video features for increased display capabilities, down-line loadable character sets to maximize flexibility and provide invaluable time savings, programmable function keys to eliminate repetitive keystrokes in performing routine tasks, and full VT100 compatibility.

VT100 compatibility includes VT52 emulation and U.S. or European modem controls, as well as such operator-oriented features as reverse video, double-height and double-width characters, split screen, and bidirectional smooth scroll.

For exciting and powerful graphics applications, the VT240 and VT241 generate full bit-map graphics in both ReGIS format and Tektronics 4010/4014 emulation, thereby conforming to accepted industry standards for graphics. ReGIS (Remote Graphics Instruction Set) is Digital's general purpose graphics descriptor; it lets you easily create and store pictorial data for later recall and use in your work. ReGIS is an instruction set built into the VT240 and VT241. The commands can be used to generate lines, text, circles, and curves. ReGIS instructions allow absolute or relative positioning of the text and pictures. Frequently used picture components can be labeled and stored in memory as subroutines. Distinctive characteristics called attributes include assigning color or intensity; shading figures with patterns or characters; overlay, replace, complement, and erase writing of graphics; variable height and width characters; variable spacing and writing of directions; and italics.

Tektronics 4010/4014 graphics emulation brings this very popular and functional graphics capability to your office.



The VT240 is a microprocessor-based terminal consisting of three parts: a black-and-white 12-inch, tiltable monitor with nonglare screen; a low-profile, modular keyboard; and a systems box containing both the power supply and the terminal's video and graphics logic. The VT241 uses a 13-inch color monitor instead of the 12-inch monochrome monitor.

The VT240 and VT241 support both local and remote connections to the host; an optional self-contained modem provides autoanswer/dial functionality. The self-contained modem offers significant advantages when space and ease of use are considerations.

Like the VT220, the VT240 and VT241 terminals are easy to use, with a plain-language set-up menu for defining selectable system characteristics. These set-up parameters are stored in nonvolatile memory and can be changed at any time. Nonvolatile memory ensures that your set-up will remain as the characteristics of your workstation, even in the event of a power failure. As your requirements may change, you can easily and quickly change the terminal's characteristics by using a plain-language, menu utility. Communications protocols, tab settings, print speed, and keyboard attributes are some of the features you can customize to fit your application.



The VT240 and VT241 graphics planes are divided into picture elements, or pixels, in an 800-by-240 array. Each pixel can be programmed individually to provide medium-resolution graphics and a wide variety of text styles. This offers a very high degree of flexibility and resolution for your graphics requirements. There are two complete graphics planes that are positioned one behind the other. This allows two separate graphs to be overlayed for comparison or for blending and shading to achieve multiple levels of gray and color with the VT241. Both the VT240 and VT241 integrate the presentation of text and graphics as a single screen image.



• The DECmate Office Workstation

To meet the demanding needs of today's office, Digital has designed and packaged the powerful combination of a DECmate II system with high-performance word processing software, CP/M application software capabilities, and flexible communications capabilities for easy access to other workstations, ALL-IN-1 systems, corporate host systems, and external databases. We call this combination the DECmate Office Workstation.

We've designed the DECmate Office Workstation to have the capabilities you need to do your job more efficiently and more effectively. We understand that you need more than a word processor in your office to help you do your job. You, of course, need word processing to write and revise letters, memos, and reports. But you also need to merge financial data files with word processing documents, and then electronically mail the final report to others in your department or company. On most systems available today, this merging and mailing process either doesn't exist or involves dozens of keystrokes and complicated procedures.

That's why Digital designed the DECmate Office Workstation to combine all the features you were looking for in a single, attractively priced desktop unit.

Word Processing Now Integrated With Your CP/M Application

Of course the DECmate Office Workstation offers feature-rich, high-quality word processing developed by Digital and optimized for the DECmate II system. DECmate also has all the tools that managers and professionals need to help them with their jobs—spreadsheets, graphics, and data management, project management, and financial tools, and many others.

You can select from among the industry's most popular CP/M software application programs to build a workstation that does exactly what you need it to do.

But Digital now offers you an important advantage. Recent enhancements to DECmate's CP/M software let you merge word processing documents with your CP/M files—on the same workstation. Using only a few keystrokes, the WPS-CONVERT utility links the two files together in seconds.

And, now that DECmate systems support a 10-Mbyte Winchester disk for CP/M and COS-310 applications, you'll have plenty of space to store and access numerous applications and data, quickly and easily.

Communications Made Even Simpler

DECmate's true value as an Office Workstation becomes more obvious once you realize how easy it is to transfer documents to and from other systems. A new WPS software feature called Easycom makes it easy to dial and log onto a host and issue start-up commands.

A single keyboard command puts you and your documents in touch with other office information systems such as our ALL-IN-1 system, other DECmate users, or even other vendors' systems and public information databases like Dow Jones News/Retrieval, CompuServe, WESTLAW, and The Source.

Customize a DECmate Office Workstation To Work the Way You Do

Designing your own DECmate Office Workstation is as easy as ordering dinner from a menu. We'll help you get started with a DECmate II desktop system, and include a special package that consists of our newest WPS word processing software, Easycom, and Digital's custom CP/M Version 2.0 with WPS-CONVERT.

• DECmate III

Inspired by European standards, DECmate III brings a sleek new look to word processing technology. In fact, the innovative styling of the system's keyboard and monitor have won Digital the much coveted "iF" award for excellence in industrial design for two consecutive years at Germany's Hannover Fair.

But the DECmate III computer's beauty is far from being merely skin-deep. It shares a common lineage with other members of Digital's small computer family, most notably the DECmate II. Features such as a 12-inch nonglare video screen with an 80- or 132-column display that comes in your choice of amber, green, or monochrome; low-profile packaging that is both aesthetically pleasing and easy-to-use; a unique wedge-shaped monitor with a tilt-swivel mount that can be adjusted to any viewing angle; and a streamlined keyboard that makes typing less tedious.

Connected to the monitor by a six-foot-long-cord, the keyboard is remarkably thin and lightweight. Because it's semi detached, you can sit wherever you're most comfortable. The keyboard can be placed in the ideal working position, even if that's on your lap. It's composed of a standard typewriter keypad, an editing keypad made up of four cursor keys and six editing keys, a numeric keypad, and special function keys in an arrangement that is both logical and easy-to-use. This helps eliminate errors and increases data entry speed—valuable assets when it comes to text preparation and manipulation.

The DECmate III is a far less capital-intensive system that can function locally as a word processor or as a terminal connected to a larger computer, just like the DECmate II computer. Its smaller system unit contains a dual floppy diskette drive and optional CP/M-80 softcard and integral modem.

The interior of the DECmate III processor is a small miracle in itself. Thanks to recent developments in gate array technology, all the essential functions of the DECmate III have been engineered to fit on a board that's only slightly larger than a sheet of paper. This system board holds 96 Kbytes of main memory and the controllers for the floppy drive, video monitor, asynchronous communications port, keyboard, and printer.



The system box houses a dual diskette drive that works with two 5 1/4-inch, double-density diskettes that store up to 300 pages of text. It also contains three option slots for future system expansion. Today, you can install the Z80A CPU option card in one of these slots yourself in a matter of minutes. With the card's additional 64 Kbytes of memory, you can run a variety of CP/M-80-based applications as well as DECspell, Digital's versatile utility that checks and corrects spelling.

There's also an optional integral modem. This card performs the communication tasks that are normally performed by a separate modem outside the system such as data transfers between computers and linkages to corporate databanks or publicly accessible databases such as The Source or The Dow Jones News/Retrieval Service. Operating at either 300 or 1200 baud, it can even make the necessary connections for you over standard telephone lines with its automatic dialing and answering capabilities.

Best of all, you can take it with you—regardless of where you have to go. Even more compact than its sibling, the DECmate III system weighs only 18 pounds and is easily transportable. And when you arrive at your destination, your DECmate III will be able to speak the native tongue. Keyboards and software are available in French, Italian, German, Spanish, and English. Each keypad layout reflects the unique characteristics of each country's language, with special attention to key placement and mnemonics.

• **DECmate II**

Information management and information processing are two key business challenges that a steadily growing collection of small computer systems try to meet. Word processors, personal computers, business computers, and executive workstations are but a few of the systems and approaches being suggested to help you address your office's needs for information management and processing.

Whether you're an office manager responsible for your organization's word processing functions, a professional who analyzes data and produces reports, or the owner of a small business, you need a computer that offers a powerful combination of capabilities at a competitive price. For you, DECmate II is the answer.



The DECmate II is a full-featured, standalone word processor. Unlike other powerful word processors, the DECmate II doesn't stop there. Recognizing that businesses need more than word processing, we have designed the DECmate II to offer you complete business and data processing capabilities. But no computer system for the office is complete without powerful and flexible communications capabilities, so we engineered these into the DECmate II as well.

The DECmate II delivers three important capabilities for your office: powerful word processing, flexible business and data processing, and extensive communications capabilities.

Powerful Word Processing

The DECmate has been acclaimed as the standalone word processor price/performance leader by users and independent industry consultants.

Analyzed purely as a word processor, the DECmate is the leading performer among all the available standalone systems. This is even more impressive when one considers that it costs about one-half the price of comparable systems.

Perhaps the most common need in the office environment is for fast, accurate text generation and revision. Letters, memos, and reports often go through multiple drafts and redrafts, demanding hours of time from both professional and clerical staff.

DECmate can improve the efficiency of that process immensely. First drafts are entered into the system and all subsequent revisions can be made quickly and easily, directly on the stored first draft. Only after the material is "letter perfect" is it printed in presentation form, thus saving hours of typing and retyping.

DECmate's word processing is both powerful and easy to use. Major command functions, such as replace, search, file, and delete, are labeled on single keys on the keyboard, and require only one or two keystrokes to activate. Compared to other word processors, DECmate is amazingly easy to use.

Flexible Business and Data Processing

For business or data processing tasks, like financial analysis or basic accounting functions, DECmate offers hundreds of different possibilities. With integrated accounting packages available for the DECmate, a small or medium-sized business can run its entire bookkeeping operation on a DECmate in a fraction of the time that manual systems demand.

With DECmate's powerful CP/M option, you have access to an enormous number of widely available packaged software programs. With a DECmate, your information management needs can be addressed through powerful computer capabilities like spreadsheet analysis, database management, and financial planning tools.

Extensive Communications Capabilities

Communications is critical to an effective office information system. DECmate offers a remarkable set of communications capabilities. Documents can be easily transmitted to and received from other DECmates, other computer systems manufactured by Digital, and even other manufacturers' computer systems. With our ALL-IN-1 Office Information System running on a VAX computer, your DECmate can give you access to electronic mail and huge corporate or departmental data files. With DECmate's ability to communicate over telephone lines, you can access and retrieve information from the Dow Jones News/Retrieval Service, The Source, and dozens of other information utilities.

Computer-Based Instruction

Digital's exclusive Computer-Based Instruction (CBI) program takes you step by step through the basics of operating the DECmate II system, using carefully drawn and animated graphics and proven instructional techniques.

The Computer-Based Instruction program helps you become familiar with the operation of the system and, as a result, helps you become immediately productive. Through hands-on learning, you experience the advantages that the DECmate II can bring to your office.

Modular Design

Every DECmate II system consists of three basic parts: a system unit, a video display, and a keyboard. You can move the keyboard to the position most comfortable to you because it is attached to the video display by a 6 foot coiled cord. The lightweight video display can also be moved and tilted to the position that is most comfortable for you. The small system unit can be put under or beside your desk—depending upon your preference or the space available in your office.

Powerful Communications Capabilities

DECmate II's communication software gives you three powerful ways to transmit information from your DECmate.

Communications is an important consideration in evaluating the effectiveness of the DECmate II for your office. If, for example, you must send a new product description, created on your DECmate, to a sales representative in the field, you can transmit the entire document from your DECmate II directly to the sales representative's DECmate II. You can even transmit it automatically or unattended, so no one is needed at the other end to receive the information. DECmates allow you to communicate with many other devices other than just DECmates. These include other word processors, phototypesetters, optical character readers, and computers and external databases like the Dow Jones News/Retrieval Service, The Source, or CompuServe. With the DECmate II, you have access to the wealth of financial, business, reference, and general information that is available from these external databases.

List Processing

You can create unique and customized documents from a form document. Because List Processing performs a select-and-merge function, you can pair the form document with all entries in your list or with selected entries. It's easy for you to prepare mass mailings, standard monthly reports, or standard forms. The flexibility this feature provides lets you mix, match, and customize your text in the form that you need it.

Editor and List Processing Math

With DECmate II/WPS, you can perform calculations (addition, subtraction, multiplication, and division) while you edit a document or during list processing. And you can add the results of these calculations to the document you're editing or processing. It's easy for you to create, update, and maintain numerical tables in documents.

• PRO Office Workstation

In your office, chances are that many computer terminals and personal computers will be attached to your VAX/VMS ALL-IN-1 system. For the best possible response from the large ALL-IN-1 system, many of the high overhead tasks like word processing can be shifted from the VAX to the Professional 350 or 380 personal workstation through the PRO Office Workstation. The PRO Office Workstation can retrieve a wide variety of information from the host system and manipulate it independently, because it can off-load capabilities that are compatible with ALL-IN-1. Your VAX/VMS system no longer has to tie up valuable computing power supporting applications that don't involve communicating with other VAX/VMS users.

The PRO Office Workstation is ideal if you need your own system with the computing power and capabilities of a PDP-11 minicomputer, but need to run or integrate third-party software, either independently or connected to a larger VAX/VMS system. The PRO Office Workstation can extend corporate computing operations directly to your desk.

Flow Control at Your Desk

With the PRO Office Workstation, you can keep track of any specific commands and sequences you need to run the application required for your job. This saves time and expense.

You Define Keys and Commands

You can specify single keystroke access to frequently used functions, and you can also define complex commands by simple keywords. As your competence increases, the system provides direct access to applications by allowing you to bypass menus altogether.

Integrated with VAX/VMS ALL-IN-1

You can offload many of the high-overhead tasks from the VAX ALL-IN-1 system to your personal computer, but you have access to the VAX when you need it. You can increase your personal productivity through the convenience of your own system and the power of ALL-IN-1.

Customized Computing

You can customize your Pro Office Workstation by changing or adding menu screens. You increase your productivity by creating menus or screens to suit your personal needs and demands.

The Professional 300 Series of Personal Computers

Digital's Professional 300 Series is a powerful series of personal computers that will greatly expand the notion of what a personal computer can do for you. The Professional is much more than a personal computer. In fact, it has earned the name "professional" computer.

Into the Professional 300 Series Digital has built a number of exciting new capabilities, including a Telephone Management System, bit-map graphics, and file compatibility with our powerful family of VAX computers.

Telephone Management System—Expanding the Capabilities of Your Telephone

With Digital's Telephone Management System, you can program your Professional 350 to "answer" your telephone. Telephone Management System (TMS), an option, lets you merely enter a name of an individual, a publicly accessible database, or another computer at your keyboard, and the system will look that name up in its telephone directory and automatically place the call for you. TMS includes an option board and a "hand-free" telephone unit equipped with a speaker and a microphone.

TMS can digitize voice messages so that they can be stored on a disk and later converted back to speech. Your Professional 350 can be used as a telephone answering machine, as a dictating machine, or as a "Voicemail" terminal or workstation. Used for voice messages verbal notes can be added to—as well as transmitted with—written documents.

Powerful Graphics Features Improves Your Graphics Communications

Though most personal computers use a video monitor with resolution similar to that of a home television, the Professional Series incorporates superior graphics features that create outstanding resolution. Greater resolution means greater impact in meeting your graphics needs.

All of Digital's personal computers display a full 132 columns of data or text. The Professional 300 Series also features bit-map graphics. With bit-mapping, each pixel or picture element is individually controlled by the Professional's powerful processor. A Professional with bit-mapping offers three to four times the resolution of a home television set. This distinctive quality means the Professional can be used as a graphics workstation.

Networking Expands the Reach of Your Communications

Digital is an acknowledged leader in distributed processing and local-area networking. We are committed to providing complete networking support for our Professional 300 Series of personal computers. Local-area networks will play a vital role in addressing your office's information communication needs; our Professional Series operating system was written to support the networking and communications protocols of both our proven DECnet product and Ethernet, a powerful local-area networking product.

• The Professional Series

A new, higher-performance Professional has joined the Professional Series. The Professional 380 delivers two to three times the processing speed of any previous model, for a dramatic increase in response and display rates. At the same time, the Professional 380 offers the same networking capability, the same compatibility with larger Digital systems, and the same operating system and application software as the Professional 350 and 325.

The Professional 380 also has a video subsystem that is faster than other Professionals, as well as a higher resolution video mode. In "interlaced" mode, the Professional 380 produces twice the vertical resolution (960 X 480 pixels) of the Professional 350. The Professional 380's faster, sharper graphics are ideal for design, engineering, and scientific applications.

In addition, greater hardware integration has made more option slots available to the user. A Professional 380, equipped with color display and hard disk mass storage, uses only two of six available slots (for the RX and RD controllers), leaving plenty of room for user-installable options such as the Ethernet Controller, Realtime Interface or Telephone Management System. A comparably equipped Professional 350 has only one available option.

Finally, several new hardware options make the Professional Series more versatile than ever. The new RD52 hard disk is now available for both the Professional 350 and 380, providing up to 33 Mbytes of formatted mass storage. The Professional 380 extended bit-map (color) option mounts directly on the system board rather than occupying an option slot as on the Professional 350. And a new 512 Kbyte memory daughter board can give the Professional 380 a full Mbyte of RAM memory—without filling any option slots.

The Professional 380 owes its increased performance to the J-11 microprocessor, state-of-the-art CMOS gate arrays and a higher level of system board integration. The processor, integral floating-point accelerator and main memory are more closely coupled, and consequently faster. All 512 Kbytes of RAM memory, the video controller and the optional extended bit-map (color) board now reside on the Professional 380 system board. In addition to providing improved system performance, this frees up three option slots in a typically configured Professional System.

Other than the system board, the Professional 350 and Professional 380 hardware is virtually identical; the system enclosure, power supply, keyboard country kits, monitors, packaging, and cables are unchanged.

As a member of the Professional Series, the 380 incorporates all standard Professional system features, and is compatible with all application software, hardware options, and bus interfaces.

The J-11 CPU

The Professional 380 is based on the J-11 chip set which implements the conventional PDP-11/70 instruction set. The Professional 325 and 350, on the other hand, are based on the F-11 chip set and PDP-11/23 instruction set. Key features of the J-11 include:

-
- PDP-11/70 extended instruction set
-
- FP-11 floating-point instruction set
-
- Memory management unit
-
- 22-bit ODT console emulator
-

The Video Subsystem

The Professional 380 offers two video modes: the 350-compatible mode (960 X 240 pixels), and a higher-resolution interlaced mode (960 X 480 pixels). Using interfaced mode requires a slow phosphor monitor (slower than any of the monitors currently offered for the Professional) to prevent screen flicker. Appropriate slow phosphor monitors can be obtained from third-party vendors. In standard resolution mode (960 X 240), the Professional 380 can be used with Digital's standard monochrome or color monitors.

Other video enhancements include the ability to store four pages (screens) of bit map in video memory for faster video display. The four-page video memory is supported on color as well as monochrome systems.

The Professional 350

The Professional 350 is a powerful desktop professional computer that incorporates a system box, a modular keyboard, and a modular video screen. The system box contains a powerful and proven PDP-11 processor with up to 512 Kbytes of memory, a modular power supply, three option slots for expanding the capabilities of your system, a printer port for attaching a printer, and a dual floppy disk drive with a capacity of 800 Kbytes of data—the equivalent of about 535 typewritten pages.

Options for the Professional 350 include a 5- or 10- Mbyte Winchester disk and an extended bit-map option board that provides you with two additional display planes for monochromatic shading and color. The video display for your Professional also can be upgraded to a color video screen. Printed output can be accommodated through a choice of three printers: a letter-quality printer, a desktop printer, or a three-speed printer that provides high-quality, intermediate-quality and high-speed, dot-matrix printing.

Professional 325

The Professional 325 is, essentially, a smaller version of the Pro 350. Designed to work in clusters where a file server might provide data storage for a number of personal computers, the Professional 325 offers less expansion capability. Extended bit-map graphics or other advanced options may be added; the same choice of printers is available on both Professional 350 and Professional 325 users.

The Professional Series Extends the Capabilities of the Personal Computer

Below are some of the exciting features, functions, and benefits of our Professional Series of Personal Computers.

Multitasking Operating System

The Professional Series operating system, P/OS, runs on our acclaimed PDP-11 family processor to provide power and flexibility not found in other personal computers. The Professional Series offers multitasking—the simultaneous performance of two or more tasks.

With this unmatched computer power the Professional works the way you work—performing even dissimilar tasks simultaneously. By performing more than one task at a time, the system multiplies its own and productivity!

Bit-Mapped Graphic

The Professional Series incorporates bit-mapped graphics technology. This powerful concept for personal computers provides computer control for the most minute components of the display image—the pixels or “dots” that comprise the image.

Bit-mapping provides resolution three to four times that of a standard television. Most personal computers have home-television resolution. With the Professional's bit-mapped graphics however, the image is sharper, clearer, more visually powerful and flexible. Bit-map graphics allows the system to actually "draw" graphs rather than "constructing" them from typewriter symbols. This enhanced graphics capability greatly expands the horizons for business graphics.

Telephone Management System (optional)

Telephone Management System, is a distinctive offering for the Professional 350 that integrates your telephone into your Professional system. A vast range of computer applications using and extending the power and functions of the telephone are possible through TMS.

With TMS in the Professional 350, your telephone will become an extension of the system. Only imagination and creativity are the limits on what this innovative alliance can mean for your office. Using your Professional as a telephone-calling, answering, or processing device: or digitizing voice from the system for subsequent processing, for embedding in text, for dictation, or for transmission, can bring some truly effective capabilities into your office. TMS can open new avenues of communication, streamline rote tasks, and add new dimensions to personal computing.

Menu-Driven User Interface

Through a "friendly," meaningful menu approach, the functions of the system are easily performed. Even a novice can fully use the power of the Professional. This rapid deployment of the Professional's computing power promotes enhanced productivity as well as ease of learning.

Ergonomic Keyboard and Monitor Design

Both the Professional keyboard and the monitor incorporate ergonomic design principles.

The streamlined keyboard meets and exceeds ergonomic design standards for operator comfort and efficiency. These important design considerations maximize operator "acceptance" and comfort-level with the system, and minimize operator fatigue. The nonglare screen on the monitor overcomes problems typically associated with office lighting environments.

Computer-Based Instruction

Instruction on the use of the Professional is available directly on the system itself. Computer-based instruction is a very effective method of training operators to use a system. Employing a tutorial approach, computer-based instruction, or CBI, offers a proven "hands-on" approach to learning how to

use the Professional. Novice operators can learn at their own pace and play an active role in understanding and using the system. This ease-of-learning feature is invaluable in helping to make the Professional of immediately valuable in your office.

Full 80- or 132-Column Display

The Professional offers you the flexibility to display either 80 columns or characters per line or 132 columns or characters per line.

As a user, you can view more than the standard 80-column-only display of many personal computers. The Professional's ability to display up to 132 columns or characters per line is especially useful in spreadsheet and in word-processing applications.

Communications Capabilities

P/OS, the Professional's operating system, was written so that DECnet and Ethernet networking and communications protocols can be supported. A built-in communication port links your Professional with other workstations or host systems.

The communications and networking capabilities of the Professional can be used to transmit and receive electronic mail, share data files, or to access external databases. These capabilities critically needed in the office, are yours through the Professional. Digital is an acknowledged leader in distributed processing and local-area networking. We are committed to providing complete networking support for our Professional 300 series of personal computers. Local-area networks will play a vital role in addressing your office's information communication needs. The Professional Series' operating system was written to support the networking and communications protocols of both DECnet and Ethernet.

Help Feature

Help is always available when needed through the typing of one key.

When using the Professional, you can obtain detailed prompts, reminders, or direction by using the resident Help feature. Help will prompt you through the next step of a process so you don't need to refer to a manual. This can save you valuable time when using the system—it makes the Professional a personal computer that is both easy to learn and easy to use.

Choose from a Range of Printers

The Professionals include a printer port that allows you to attach a printer to your personal computer.

Since you often will need a print out of your files, documents, messages, and memos, you will need to attach a printer to your personal computer. With the Professional Series of personal computers, you have a choice of three printers: a letter-quality printer, a desktop printer, or a three-speed printer that provides either high-quality, intermediate quality or high-speed, dot-matrix printing.

User-Defined Function Keys

The Professional lets you reduce the number of keystrokes you need to perform commonly executed functions. As a user, you can define a task or function and assign a function key to perform it.

The Professional has a collection of user-defined function keys that can be programmed to perform a task or function instantaneously. This capability saves you time when performing the more routine types of work on your Professional. Much like a set task function on a typewriter or workstation, you can easily and quickly "customize" your workstation to do much of the work you do. Pressing a user-defined function key will trigger a predefined function. It eliminates the need for going through all the steps required to perform commonly used tasks or functions. The Professional's user-defined keys will save you time and increase your efficiency.

Built-In Diagnostics

Professional Series personal computers have built-in diagnostics to monitor the condition of their parts. If a part of a Professional is faulty, the diagnostics will promptly identify it for you in clear, meaningful terminology.

The Professional's built-in diagnostics verify the proper operation of the system and identify the location of any faulty components. Maintenance costs and troubleshooting activities can be greatly reduced through this feature.

User-Installable Options

Upgrading your Professional to incorporate some of the add-on options is so simple that you can do it yourself, saving time and money.

Optional Hard Disk Mass Storage for the Professional 350

A 10-Mbyte Winchester drive with an integral controller is available as an option for the Professional 350.

For some users or applications, the Professional's dual mini-diskette storage system of up to 800 Kbytes of data may not be enough. Unlike many other personal computers, the Professional allows you to add an additional dual mini-diskette drive for an additional 800 Kbytes more. Or you can add a Winchester-technology hard disk that will give you additional storage equivalent to about 5,000 typewritten pages.

Floating-Point Processor

The Professional system incorporates a powerful floating point processor. It significantly enhances the performance of those applications requiring large amounts of mathematical calculation. Those tasks include financial analysis, trend analysis, and financial modeling.

Optional Extended Bit-Mapped Graphics

This feature adds two planes to the standard video graphics display. Each plane supports a display of 960 by 240 pixels. It also adds a color output map that can display 8 colors from a palette of 256 on the color monitor or 8 of a possible 16 shades of gray on the monochrome monitor.

Extended bit-mapped graphics displays greatly enhance graphics images, thus communicating more information per screen and improving user productivity.

Optional CP/M-80 Coprocessor

With this option Professional CP/M-80 applications programs can run on the Professional.

The CP/M coprocessor lets you use the hundreds of applications currently available for the CP/M-80 operation system. You can continue to use an existing library of CP/M-80 programs while gradually moving up to the more powerful P/OS environment, thus protecting your investment in software.

Optional IBM 2780/3780 Communications

The Professional can emulate IBM 2780 and 3780 protocols for remote batch processing communications with various systems.

This option lets you share information among the Professional 300 Series systems and a variety of host systems. Although not a formal industry standard, the 2780/3780 protocol is accepted by many users in the data processing community.

IVIS Interactive Training System

IVIS (Interactive Video Information System) combines the power of computer-generated text and computer graphics, and displays them on a television screen. As a participatory training solution, IVIS is a cost- and time-saving solution that boosts the quality of image and sound reproduction.

If you require a still picture, IVIS offers an image approximately six times clearer than your home television, combined with two audio outputs for either stereo sound or two separate presentations. Natural moving images from an external source like a videodisc or videotape player also benefit from IVIS's six-times-sharper resolution.

Although IVIS's flexibility lets it work effectively in such diverse environments as point-of-purchase advertising and public information. It's ideally suited as a training medium. You can select the best medium, or combination of media, for a skill you teach. In a technical maintenance course, for instance, you might use a video zoom of hard-to-see components, and highlight a faulty part. Voice overlay can describe the problem, and a blow-up of the schematic diagram can reinforce the point. Your student can also get a printout of the text or graphics for further study. As a cost-effective and time-saving training tool, IVIS is hard to beat.

- *Interactive, Decentralized Instruction*

IVIS's decentralized local instruction can save you the cost of offsite and remote training, which adds up to the bulk of today's training bill. Because the trainees progress at their own rate, retention rates are increased. This not only saves you the cost of more formal training, but helps eliminate or reduce the hidden cost of future errors. IVIS also eliminates travel, lodging, and meal-time expenses from your training budget.

- *Video Simulations*

IVIS simulations call on the student to observe real-life situations and to solve problems online. This intense training cannot be reproduced without expense and difficulty with traditional methods. Your students' productivity is enhanced with Ivis and you save money.

- *The IVIS Educational Course Library*

The IVIS Educational Course Library is unique. It's an ongoing library of interactive videodisc courses that includes a wide variety of introductory, conceptual, and general interest subjects, including electronic and computer subjects, and factory and office courses. These packages can be used by themselves or integrated into your specialized, custom courses.

• RAINBOW 100 Series Personal Computers

The Rainbow 100 personal computer is a complete business system. The Rainbow gives you a tremendously broad base of software applications from which to choose, and it runs them fast. Applications run better because Rainbow's dual processors boost system throughput. Rainbow's dual-processor design—one 8-bit and one 16-bit CPU—lets you run both mature 8-bit software and today's advanced 16-bit applications on the same personal computer, automatically. No swapping disks or even telling your personal computer which kind of program you've loaded—Rainbow sensing and switching capability automatically knows which it is. And since Rainbow runs both the popular CP/M-86/80 and MS-DOS, operating systems without any additional hardware, you have an enormous variety of applications from which to choose.

A Rainbow 100 system is ready to use. There are no "hidden-cost" options that you need before you can start working. You get enough memory to do real work from the start—64 Kbytes, optionally expandable up to 256 Kbytes. The innovative floppy disk drive, which holds two 400 Kbyte diskettes on one spindle, gives you a minimum storage capacity of 800 Kbytes, or more than 400 pages of text, to store your documents and programs. You can add a second dual-diskette drive for a total of 1.6 Mbytes of diskette space. Rainbow's advanced engineering—including its memory-mapped video which repaints the screen quickly as you work—gives you exceptionally high performance.

Rainbow also communicates quickly and effectively with other computers. Rainbow's built-in terminal emulation capability lets it act as a terminal to other Digital computers. At no extra cost, without loading any software, this gives you access to the processing power and resources of mainframes and minicomputers.

Alternately, you can use optional software that lets you communicate with mainframes and personal computers manufactured by IBM Corporation, Apple Computer, Inc., and Texas Instruments.

You don't have to buy a communications port or a printer port as extra options because they come standard with the system. The communications port lets you take full advantage of Rainbow's communications capabilities: Rainbow can talk to another personal computer, and can communicate interactively with a mainframe host or an information network (such as a public information system like the New York Times Information Service), or, can act as a terminal to a host. Rainbow gives you dial-in access to outside information services including Dow Jones News/Retrieval, which carries financial news,



market information, and company profiles; and The Source for travel information, reservations, and business information programs. The Source can also link you to a private distribution network through an executive mail service. Personal computer local area networks, such as OMNINET from Corvus Systems, lets your Rainbow exchange data and files with other personal computers as well as share such resources as disks and printers.

Digital offers a full selection of options, peripherals, furniture, and accessories for the Rainbow. Because they're from Digital, you know you can count on high quality and reliability. Three printers—the dot-matrix LA50 Personal Printer, the versatile Letterprinter 100, and the daisywheel LQP02 Letter Quality Printer—are designed to work with the Rainbow and are engineered for dependability.

Here's the Plus

Rainbow comes in two models—the Rainbow 100 and the Rainbow 100+. To meet different business requirements. The Rainbow 100+, a direct extension of the entry-level Rainbow 100, has all the outstanding features of the Rainbow 100. It also has an internal 10-Mbyte Winchester disk, more main memory, more memory expansion capability, and enhanced graphics capability, all as standard features. Rainbow 100+'s increased storage space and main memory give you faster information transfer and access to your files.

If your business demands more mass storage for programs and data, you'll want the Rainbow 100 + with its internal 10-Mbyte hard disk. The Rainbow 100 + comes with 128 Kbytes of main memory and is expandable to 896 Kbytes. You expand the memory on the Rainbow 100 + simply by adding chips to a memory foundation module, so you can increase memory easily; whenever you want to.

Countless Applications

Rainbow runs all of today's popular personal computer operating systems, including CP/M-86/80 (a combination of CP/M-86 and CP/M-80 with additional utilities, including a powerful screen-oriented text editor); MS-DOS; Concurrent CP/M (available from Digital Research, Inc); and UCSD p-System (available from Ticom Systems, Inc.). This means you can access thousands of industry-standard software applications, including spreadsheets, accounting packages, word processing, and database management. You can choose the software that's right for the job that you need to get done.

Whatever your profession, Rainbow can help solve your problems. Marketing or sales managers can use the Rainbow to analyze advertising returns or price sensitivity. Rainbow can forecast sales or end-of-the-year estimates for a business owner. Financial managers can perform break-even analyses, cash flow, and net present value analysis. With Rainbow, professionals can produce their memos, reports, proposals, and letters quickly and simply. And the graphics they run under industry-standard GSX-86 graphics software can add clarity to their reports and give them a more professional look.

Below, are some of the important features of the Rainbow personal computers:

Total CP/M Capability

The Rainbow personal computers have the distinctive ability to run either CP/M-80 (8-bit CP/M) or CP/M-86 (16-bit CP/M). The Rainbow's two processors offer this powerful benefit.

The Rainbow personal computers provide unmatched flexibility to let you run the widest range of personal computing software.

Softsense Feature

The Rainbows incorporate a totally automatic sensing and switching capability called Softsense. This Digital-unique feature lets you load into the Rainbow either 8-bit or 16-bit CP/M-based programs without changing or even notifying the system. Softsense will automatically "sense" the type of operating system required and will activate the appropriate processor.

The two processors in the Rainbow broaden the range of available software that you can use in meeting your personal computing needs. Softsense eliminates the need for you to be concerned about which "flavor" of CP/M operating system is being used. Softsense provides an ease of use that no other personal computer offers.

Built-In Terminal Emulation Capability

You can connect Rainbow personal computers to a computer network or to a computer host system without having to purchase additional software.

With Rainbow's terminal-emulation capability, you can use your personal computer as a terminal or workstation tied into a computer network or into a Digital computer. This feature gives you extreme flexibility by giving you access, through your Rainbow, to shared databases, to electronic mail networks, to departmental systems, and to other computing resources both inside and outside your business organization.

Ergonomic Keyboard and Monitor Design

Rainbow's streamlined keyboard meets and exceeds worldwide ergonomic design standards for operator comfort and efficiency. These important design considerations maximize operator acceptance and comfort and minimize operator fatigue. The nonglare screen overcomes common glare problems and further increases operator efficiency.

Computer-Based Instruction

Instructions for using the Rainbow series are available on the system itself.

Employing a tutorial approach, computer-based instruction (CBI) offers hands-on experience in learning how to operate the Rainbow. Novice operators can learn at their own pace, and play an active role in understanding and using the Rainbow. Because there is no lengthy learning process involved, the Rainbow can become immediately valuable in your work.

Full 80- or 132-Column Display

As a user, you have the option of viewing more information than can be displayed on the standard 80-column-only display of many personal computers. The Rainbow can display up to 132 columns of data, which is particularly useful in an application like a financial spreadsheet, which includes many columns of data to be evaluated.

"Help" Feature

The Rainbow series incorporates an online "help" facility that's invoked by depressing one key.

You can obtain detailed prompts, reminders, or directions by taking advantage of the help feature. Help will prompt you through the next step of a process so you don't have to refer to a manual. Help makes the Rainbow a personal computer that is both easy-to-learn easy-to-use.

User-Defined Function Keys

With a Rainbow you can define and use a set of user-defined function keys to initiate and perform repetitive tasks.

The Rainbow's user-defined keys can be easily "programmed" to perform a task or function. All you need to do once the keys are "programmed" is press the appropriate key and the predefined function or task will be executed. This can be a powerful timesaver in performing routine work.

Built-In Diagnostics

Rainbow personal computers have built-in diagnostics to monitor the condition of their parts. If a part of the Rainbow is faulty, it will be promptly and clearly identified.

The Rainbow's built-in diagnostics verify the proper operation of the system and identify the location of any faulty components. Maintenance costs and troubleshooting activities are greatly reduced.

Customer-Installable Options

Upgrading your Rainbow to incorporate some of the add-on options is so simple you can do it yourself, saving time and money.

Winchester Disk

For some users running sophisticated applications online diskette storage is inadequate. So Digital now offers a 10-Mbyte Winchester disk with integral controller for the Rainbow series. This hard disk is standard on the Rainbow 100 + and is optional on the basic Rainbow 100.

Graphics

With the graphics option, the Rainbow can display graphics on the screen in either medium or high-resolution modes. In high-resolution mode (240-by-800 pixels), four colors from a palette of 4096 may be displayed on the color monitor. Four gray scale values can be displayed on the monochrome monitor. In medium resolution mode (240-by-384 pixels), 16 colors or gray scales can be displayed. The industry-standard GSX graphics interface for CP/M is used.

Graphic representations of data make numerical relationships easier to understand and visual presentations more effective. The industry-standard device interface (GSX) means you can use many of the graphics applications currently available.

Extended Communications

Extended communications can handle a wide variety of protocols including asynchronous/byte-synchronous protocols such as DDCMP and Bisynch, and bit-synchronous protocols such as SDLC, HDLC, and ADCCP. The Rainbow also incorporates RS-422 and RS-423 DMA ports to broaden its communication flexibility. An extended communications option lets a Rainbow communicate with IBM mainframes via either Bisynch or SNA protocols. The user can also develop software that communicates with public packet-switching networks using the X.25 protocol.

• The Telephone

The telephone is the most commonly used office tool. Until very recently the telephone and the computer terminal were separate entities. The telephone was used for personal communication and the terminal was used for system communication.

With the advent of voice technology products, such as voice digitization techniques and DECTalk, the telephone can now be used as an extension of your office computer terminal capabilities.

DECTalk provides a capability unmatched in the industry. It gives you the ability to call your computer system and have information read to you over the telephone, in an almost human like voice quality. This means that information previously only available from a computer terminal can now be accessed from any telephone, anywhere.

DECTalk Mail Access offers an alternative to the office computer terminal, by providing a telephone connection to ALL-In-1, Digital's integrated office system software. DECTalk Mail Access lets people read their incoming electronic mail or any other document stored in their ALL-IN-1 filing cabinet. This tool can keep you up to date with your electronic mail even while you're away from your office.

Voice digitization techniques have helped create a new form of interpersonal communication called voice mail. Digital and Voicemail International, jointly, are offering a voice mail system, the Voicemail Information System. This system can provide your organization with a very effective method of communication. With a voice mail system you can have your incoming calls read to you over the telephone, so that even on the road you can keep up with your important telephone messages. This type of system is also an extremely effective communication tool for sales organizations, where personnel are rarely available for personal phone conversations.

ALL-IN-1 Voice Messaging Support is another tool that makes better use of your telephone resources. With it ALL-IN-1 users can be made aware of any new voice mail messages and have those messages read to them over the telephone by using simple keyboard commands. This utility gives the ALL-IN-1 user one place to find any new electronic messages, both electronic and voice, and a common interface for reading those messages.

All of these products are discussed in greater detail in the Voice and Electronic Mail section of this book.

Office Workstations and Terminals

Product Specifications and Ordering Information

DECmate III	4-63
PRO 380	4-64
VAXstation 100	4-66
RAINBOW	4-69
IVIS	4-76
PRO/Office Workstation	4-78
PRO 325/PRO 350	4-79
DECmate Office Workstations	4-83
DECmate II CP/M 2.2	4-84
DECmate II	4-85
VT200 Family of Video Terminals	4-89

• DECmate III

Specifications

System Unit

Dimensions	5 in. H (12.7 cm) x 11 in. D (27.9 cm) x 11.5 in. W (29.2 cm)
Weight	18 lb (8.2 kg)
CPU	6120 high speed CMOS processor
Memory	96 KB
Controllers	Controllers for a single dual-floppy diskette drive, video display, keyboard, serial printer, and asynchronous communications line on the system board.

Storage

RX50 dual diskette drive (2 x 400 KB)

5¼-inch diskettes

Options

8-bit Auxiliary Processing Unit (APU)

Integral Modem 300/1200 baud, compatible with Bell type 103A and 212 modems, respectively (U.S. only)

Monitor

VR201 Dimensions 11.5 in. H (29.2 cm) x 12.25 in. D (31.1 cm) x 13.75 in. W (34.9 cm)

VR201 Weight 14 lb (6.4 kg)

Screen display available in amber, green, or black and white

24 lines x 80 or 132 columns

Adjustable Tilt

Nonglare Screen

Keyboard

Dimensions 2 in. H (5.0 cm) x 21 in. D (53.3 cm) x 6.75 in. W (17.1 cm)

Weight 4.5 lb (2.0 kg)

Low-profile, detached sculptured key array 105 matte-textured keys

Key groupings: main keypad, editing keypad, numeric keypad, special function keys

Electrical

Input Voltage	90-132 V or 180-264 V
Frequency	47-63 Hz
Power Consumption	150 W (maximum) 1.4A @ 120 Vac 0.7A @ 240 Vac
Environmental	
Temperature Range	59°F-90°F (15°C-32°C)
Humidity	20-80%

DECmate III**Ordering Information**

PC238-AA	DECmate III system including system unit, monochrome monitor, country kit, and word processing software.
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• PRO 380**Specifications**

CPU	J-11
Closely Coupled Memory Bus	Yes
RX50 Dual-Diskette Drive	Yes
Standard RAM Memory	512Kbytes
Memory on system board	512Kbytes
Video Controller	On system board
Extended Bit-Map Option	Daughter Board
Video memory	4 pages/plane
Number of bus module slots	6
Available slots in monochrome hard disk system	4

Allocated slots in monochrome hard disk system	RX Controller RD Controller
Professional Options	All except 350 EBO and 350 video controller
Operating systems (note specific version requirements for the Professional 380, especially the latest revision of P/OS)	P/OS (V2.0A) RT-11 (V5.1C) CTS-300 PRO/VENIX (V1.1) XENIX** Idris** p-System** CP/M-80 MUMPS**

• Professional 380 Ordering Information

PC380-AA—	Professional 380 System Unit (120V).
PC3K1-BA—	Keyboard Country Kit (U.S.).
VR201-A,B,C—	Monochrome Monitor.
RCD51-A—	10Mbyte Hard Disk w/Controller.
VC241-B—	Extended Bit-Map Option (380 only).
MSC11-B—	512Kbyte Memory Option.
PC350-UG—	350 to 380 Upgrade Kit w/trade-in.**

• **VAXstation 100**

Specifications

UNIBUS Window Module

Mounting	1 Hex slot
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Power drawn	@ 5V 3.5
	@ -15V .20
	@ +15V .15

Bus loads drawn

Monitor

Size	19 inch (diagonal)
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Orientation	Landscape (horizontal)
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Format	1088 horizontal by 864 vertical by 1 pixels on a square grid
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Resolution	78 pixels per inch
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Picture size	28.19 cm by 35.4 cm (11.1 in. by 13.95 in.)
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Refresh	60 Hz non-interlaced
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Phosphor	P4 low persistence monochrome
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Ergonomics	Tilt swivel base, anti-glare screen
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Controls	Brightness, contrast
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Power	70 watts
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Weight	20.2 kg (45 lbs)
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Detached Keyboard

105 sculptured keys

Typewriter main array

Editing keypad

Numeric keypad

12 Programmable function keys

Profile	30 mm (1.2 in.) (from palm rest to home row)
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Cord length	3.6 m (12 ft.)
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Weight	2 kg (4.5 lbs)
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Mouse

Output	200 pulses per inch (X and Y relative displacement)
Cable length	3.6 m (12 ft.)
Function buttons	3

Graphics Tablet

Area	27.9 cm by 27.9 cm (11 in. by 11 in.)
Resolution	1000 points per inch
Accuracy	.010 inch
Repeatability	.001 inch
Pointer	5 button puck
Cable length	3.6 m (12 ft.)

Fiber Optic Link

Bandwidth	10 Mbit per sec
Length	Up to 300 meters (990 feet)
Bend radius	3 inches

Graphics Processor

Motorola 68000 microprocessor
128 Kbytes local 68000 program memory
16 Kbytes bootstrap and diagnostics ROM
512 Kbytes frame buffer
2901-based graphics accelerator

Power Supply

210 watts
120/220V, 60/50 Hz
3 wire

Performance

Text writing	30,000 characters per second
Pixel writing	1 microsecond per pixel
Vector drawing	2 microseconds per pixel
Full screen clear or write from local memory	0.1 second
Full screen write from VAX memory	1.0 second

• VAXstation 100

Ordering Information

VS100-AA—	VR100-AA (Monochrome 19 in. (48 cm) Monitor 1088H x 864V resolution, 60 Hz, 10ft. (3 m) cable). Includes UNIBUS interface, multibox with Graphics Processor and 120/220V 60/50 Hz power supply, and the DS11-FA VAX UNIBUS-Window/Fibre-Optic-Transceiver Card.
LK201-CA—	1 Keyboard with 12 ft. Cord (U.S./Canada).
VS10X-BA—	1 VS10X-DA (11 in. x 11 in. Graphics Tablet). 1 VS10X-CA (5-button Puck).
VS10X-EA—	3-button Mouse with 12 ft. cable.
BN25B-15—	15 Meter Optical Cable with terminators.
BN25B-30—	30 Meter Optical Cable with terminators.
BN25B-60—	60 Meter Optical Cable with terminators.
QC432-AG—	VS100 I/O Driver Binary for VAX-11/730.
QD432-AG—	VS100 I/O Driver Binary for VAX-11/750.
QE432-AY—	VS100 I/O Driver Binary for VAX-11/780.
QC434-AG—	VAXstation Display Services (including VS100 I/O Driver). Binary for VAX-11/730.
QD434-AG—	VAXstation Display Services (including VS100 I/O Driver). Binary for VAX-11/750.
QE434-AY—	VAXstation Display Services (including VS100 I/O Driver). Binary for VAX-11/780.
QC434-GZ—	VAXstation Display Services Documentation for VAX-11/730.
QD434-GZ—	VAXstation Display Services Documentation for VAX-11/750.
QE434-GZ—	VAXstation Display Services Documentation for VAX-11/780.
QC432-DZ—	VS100 I/O Driver License for VAX-11/730.
QD432-DZ—	VS100 I/O Driver License for VAX-11/750.
QE432-DZ—	VS100 I/O Driver License for VAX-11/780.
QC434-DZ—	VAXstation Display Services (including VS100 I/O Driver) License for VAX-11/730.
QD434-DZ—	VAXstation Display Services (including VS100 I/O Driver) License for VAX-11/750.
QE434-DZ—	VAXstation Display Services (including VS100 I/O Driver) License for VAX-11/780.

• Rainbow

Rainbow 100 System Specifications

System Unit

Two microprocessors—Zilog 8-bit Z80A and Intel 16-bit 8088

Main memory—64 Kbytes parity RAM, expandable up to 256 Kbytes

Dual-diskette drive—800 Kbytes removable floppy storage, expandable to 1.6 Mbytes

Serial RS232/423 printer port

Async/sync RS232/423 printer port

Memory-mapped video

Terminal emulation

Keyboard

Low-profile, detached

N-key rollover

Sculptured key array

105 matte-textured, non-slip keys

Separate editing keys and numeric keypad

Adjustable keyclick and bell tone

Video Monitors

80 or 132 column width display

High resolution, 7 x 9 dot matrix

Bit-mapped graphics capability

60 image-per-second refresh rate

High-efficiency, anti-glare filter

Monochrome

Monochrome composite, choice of white, amber, or green display on black

12-inch (diagonal) screen

Color

RBG Color

13-inch (diagonal) screen

Diagnostics

Power-up self-test

Menu-selectable self-test

Diagnostic diskette

System Expansion & Options

Three option module slots, all options user-installable

Memory expansion option—64 Kbytes or 192 Kbytes additional RAM

Graphics option

Extended communications option or third-party module

Additional dual-diskette drive fits in system unit for a system total of 1.6 Mbytes

Rainbow 100 + System Specifications

System Unit

Two microprocessors—Zilog 8-bit Z80A and Intel 16-bit 8088

Main memory—128 Kbytes parity RAM, expandable up to 896 Kbytes

Winchester hard-disk drive—10 Mbytes internal storage

Dual-diskette drive—800 Kbytes removable storage

Serial RS232/423 printer port

Async/sync RS232/423 communications port

Memory-mapped video

Terminal emulation

Keyboard

Low-profile, detached

N-key rollover

Sculptured key array

105 matte-textured, non-slip keys

Separate editing keys and numeric keypad

Adjustable keyclick and bell tone

Video Monitors

80 or 132 column width display

High resolution, 7 x 9 dot matrix

Bit-mapped graphics capability

60 image-per-second refresh rate

High-efficiency, anti-glare filter

Monochrome	Monochrome composite, choice of white, amber, or green display on black
	12-inch (diagonal) screen
Color	RBG Color
	13-inch (diagonal) screen
Diagnostics	
Power-up self-test	
Menu-selectable self-test	
Diagnostic diskette	
System Expansion & Options	
Two option module slots, all options user-installable	
Memory expansion options—8 upgrades available, to a system total of 896 Kbytes	
Graphics option	

System Unit and Power Supply for Rainbow 100 and Rainbow 100 + Specifications

Physical description	
Height	6.5 in. (16.5 cm)
Length	19 in. (48.3 cm)
Width	14.3 in. (36.3 cm)
Maximum weight	30 lbs. (13.6 kg)
Power supply type	Transistor, Switch-type AC to DC converter
AC Input	Switch-selectable
115V nominal	Single-phase, 3-wire 90-128V rms 47—63 Hz line frequency
230V nominal	Single-phase, 3-wire 174-256 rms 47—63 Hz line frequency
Line Current	3A @ 115Vac 1.5A @ 230Vac
AC Power consumption	237 Watts
Regulated voltages	+ 5V, + 12V, & = 12V DC
Circuit protection	Circuit breaker, externally accessible

Rainbow 100 + Internal Hard-Disk Drive Specifications

Height	3.3 inches (8.3 cm)
Width	5.8 inches (14.6 cm)
Depth	8.5 inches (20.4 cm)
Weight	4.5 lbs (2.3 kg)
Formatted capacity	10 Mbytes
Performance	
Peak transfer rate	5M bits per second
Rotational latency	8.33 milliseconds
Average access time	85 milliseconds
Media Characteristics	
Density	345 tracks per inch, 9074 bits per inch
Recording method	MFM
Start time	15 seconds
Stop time	20 seconds
Rotational speed	3600 rpm
Number of data platters	2
Number of data surfaces	4
Number of heads per surface	1

Rainbow Dual Diskette Drive Specifications

Performance	
Capacity/drive	819 Kbytes
Diskettes per drive	2
Number of recorded surfaces	2
Per track	5,120
Per sector	512 bytes
Sectors per track	10
Transfer rate	250 Kbytes/s
Average access time	290 msec

Functional Specifications

Rotational speed	300 r/min
Densities	96 tracks per inch
Physical Description	
Height	3.3 inches (8.4 cm)
Width	5.8 inches (14.7 cm)
Depth	8.5 inches (21.6 cm)
Weight	3.8 pounds (1.7 kb)

Rainbow Keyboard Specifications

Electronics	8-bit microprocessor
	4 Kbytes of ROM
	256 bytes of RAM
	4 LEDs
	Speakers
Cord	6-foot (1.9 m), coiled
	4-pin telephone-type modular connectors
	Plugs into display monitor
Physical Description	Low profile, detachable
Height	2.0 inches (5 cm) at highest point
Length	21 inches (53.3 cm)
Width	6.75 inches (17.1 cm)
Weight	4.5 pounds (2 Kg)
Keypad	Sculptured key array
Home row key height	30 mm above desktop
Keys	105 matte textured-finished keys
	Concave surface
Size	0.50 inches (1.27 cmm) square
Spacing	0.75 inches (1.9 cm) center to center (single-width keys)
Wobble	Less than .020 inches (0.5 mm)
Numeric keypad	18 keys

Function keys	36 keys; firmware- and software-driven
	20 function keys horizontally positioned beneath label strip
Diagnostics	Powerup self-test
	Generates identification code upon passing test

Rainbow Video Monitor Specifications

Physical Description

Height	11.5 inches (29.2 cm)
Width	13.75 inches (34.9 cm)
Depth	12.25 inches (31.1 cm)
Weight	14 lbs (6.4 kg)
Adjustable tilt	+ 5 to—25 degrees
Standard video output	RS170 compatible, monochrome character cell video

Video Screen

12 inches (diagonal)

Anti-glare filtering to reduce eye fatigue

Video Display

High-resolution monochrome with bold, underline, blink, and reverse-video

Split-screen capability

60-image-per-second refresh rate reduces screen flicker

Keyboard

Characters	7 x 9 dot matrix, includes 2-dot descenders
Format	80 or 132 columns wide, selectable, by 24 lines for a total in excess of 3000 characters

Graphics 800 x 240 pixels

(With Graphics Option)

Set-UP Parameters	Smooth or jump scroll, scroll rate, light or dark screen, block or underline cursor, auto wrap, auto screen blank, menu-selectable
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Rainbow Color Monitor Specifications**Physical Description**

Height	12.8 inches (31.9 cm)
Width	14.5 inches (36.3 cm)
Depth	17.0 inches (43.2 cm)
Weight	36.6 lbs (16.6 kg)

Video Screen

13 inches (diagonal)

High-resolution color

High-efficiency, anti-glare filter

Color Graphics (*With Graphics Option*)

High-resolution Mode	800 x 240 pixels, 4 selectable colors
Medium-resolution Mode	384 x 240 pixels, 16 selectable colors
Palette	1024 colors for the Rainbow 100# 4096 colors for the Rainbow 100 +

Text (*Under Video Control of System Unit*)

Format	80 or 132 columns wide, selectable by 24 lines 7 x 9 dot matrix, includes 2-dot descenders
Video Display	Bold, underline, blink, and reverse-video, and split-screen capability
Active Raster Size	240 mm (W) x 150 mm (H)
Dot Pitch	.31 mm resolution (shadowmask)
Deguassing	Built-in automatic
Interface	Standard RS170 RGB (red-green-blue) cable connector with built-in line termination and selectable external synch
Power Supply	Universal, switch-Selectable 90-120 Vac, 47-63 Hz or 185-256 Vac, 47-63 Hz
Hardware Prerequisite	Graphics Option (PC1XX-BA)

NOTE

The palette for the Rainbow 100 is 4096 if separate monitors for text and graphics are used.

• **Rainbow 100 and Rainbow 100 +
Ordering Information**

PC100-A—	Rainbow 100 System Unit.
PC100-P2—	Rainbow 100 + System Unit.
PC1K1-AA—	Keyboard for Rainbow 100.
PC1K1-BA—	Keyboard for Rainbow 100 + .
VR201-A—	Monochrome Video Monitor (White).
VR201-B—	Monochrome Video Monitor (Green).
VR201-C—	Monochrome Video Monitor (Amber).
VR241-AA—	Color Monitor.

• **IVIS**

IVIS

Configuration Information

The following components make up each IVIS Packaged System:

Order No.	Description
PC350-D2	Professional 350 System Unit
PC3K1-BA	Country Kit
RCD51-A	10MB Hard Disk
PCXXF-AA	Vertical Floor Stand
PC3VS-AA	IVIS Interactive Video Option includes FloorStand "Backpack," Video and System Modules, Headphones, Power Switch, Color Monitor Cable and IVIS Installation Verification Videodisc
QBA02-H3	Professional Operating System (P/OS)
QBA27-A3	PRO Interpreter (binaries, documentation, license)

• IVIS

Ordering Information

PC35VVB—	PRO IVIS/Videodisc System.
PC35VVC—	PRO IVIS/Videodisc Touch System.
PC3VS-AA—	NTSC Video Interface.
VDP40-AA	Videodisc Player
VR241-AA	13" RGB Color Monitor
VRTS1-A	DECtouch Color Monitor (includes DECTouch/ alternate Input Device cable)
SUM OF COMPONENTS	
PRO IVIS/Videodisc System Package	
PRO IVIS/videodisc Touch System Package	

The PC3VS-AA IVIS option included in these IVIS Packaged Systems is an enhancement of the PC3VS-A IVIS option originally announced. PC3VS-AA now includes an IVIS installation Verification Videodisc, used to verify that the installed IVIS system is functioning properly, a headset, IVIS software drivers and subroutine libraries, the BCC03-06 Color Monitor cable, and a full one-year warranty on all parts and labor.

Both of these IVIS Packaged Systems incorporate all of the options that were developed specifically to address IVIS interactive video informational needs. Although these options may be purchased separately, it is more expensive to do so, and Field Service installation will be necessary because the PC3VS-AA IVIS option, purchased separately, is not customer installable.

However, these IVIS Packaged Systems *are* customer installable, because they come with a new Professional 350 kernel, referred to as the PC350-1, which has been pre-configured specifically for IVIS. The PC350-1 is a modified version of the standard Professional 350 kernel, in which the bit-map video module board has been replaced by the three IVIS interface modules that come standard with the PC3VS-AA IVIS option, and the black-and-white video cable has been replaced with the BCC03-06 color video cable. Note that the PC350-1 pre-configured kernel is not an orderable option: it is only available through purchase of one of these IVIS Packaged Systems.

The IVIS option also allows a second videodisc player to be connected to the workstation, so that an IVIS course can switch between video and audio segments contained on two separate videodiscs in a manner transparent to the user. Customers who wish to take advantage of this capability should order a second VDP40-AA Videodisc Player and PC3VX-AA Videodisc Player Accessory Cables option as separate line items.

• **PRO/Office Workstation**

Minimum Hardware Required

- A PRO 350 with RD51 disk and 2000 blocks of free disk space.
-

Optional Hardware

- DF03 Modem
 - Telephone Management System (TMS)
 - LA50, LA100-PC or LQP02 Printers
-

Prerequisite Software

- P/OS Version 1.7 or later
 - PRO/COMMUNICATIONS VERSION 1.7 or later.
 - PRO FILE TRANSFER (PFT) on the VAX if the VAX is configured in the system.
 - VAX/ALL-IN-1 Version 1.3 (or later) is a prerequisite for electronic mail and desk management.
-

Optional Software

- System Startup Services
 - Digital Classified Software (DCS) Application Programs
-

• **PRO/Office Workstation Ordering Information**

QBA64-A3—	PRO/Office Workstation includes single-use license, binaries, documentation and support services.
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PRO/Office Workstation is available only on RX50 Double Density 5¼" Diskette distribution media.

• The Professional 325 and the Professional 350

Professional 325 and 350 System Summary Specifications

Standard System	System unit, keyboard, display screen, and operating system
System Unit	Large Box.
CPU	F11 (PDP-11/23) microprocessor with standard floating point processor
Memory	512 Kbytes, expandable in 256 Kbyte increments
Clock	Nonvolatile RAM with rechargeable NiCD battery
Printer port	Serial, RS232.
Communications port	Asynch/synch, up to 9,600 baud with modem control
Storage	Dual diskette drive (2 x 400 Kbytes).
Video Output	Monochrome, RS170-Compatible
Operating System	Professional Operating System (P/OS), multi-tasking software Optional CP/M-80 operating system
System Expansion	1 option slot (Professional 325) 3 option slots (Professional 350) User-installable

System Unit and Power Supply for Professional 325 and 350 Specifications

Physical Description	
Height	6.5 in. (16.5 cm)
Length	22 in. (55.8 cm)
Width	14.3 in. (36.3 cm)
Maximum weight	35 lbs. (15.9 kg)
Power Supply Type	Transistor, switch-type AC to DC converter
AC Input	Switch-selectable
115V nominal	Single-phase, 3-wire 90-128V rms 47-63 Hz line frequency
230V nominal	Single-phase, 3-wire 174-256V rms 47-63 Hz line frequency

Line Current	6A @ 115Vac
	4A @ 230Vac
AC Power Consumption	320 Watts
Regulated Voltages	+ 5V, + 12V, &—12V DC
Circuit Protection	Circuit breaker, externally accessible

Professional 325 and 350 Diskette Subsystem Specifications

Performance

Capacity/drive	819 Kbytes
Diskettes per drive	2
Number of recorded surfaces	2
Per track	5,120
Per sector	512 bytes
Sectors per track	10
Transfer rate	250 Kbytes/s
Average access time	290 msec

Functional Specifications

Rotational speed	300 r/min
Densities	96 tracks per inch

Physical Description

Height	3.3 inches (8.4 cm)
Width	5.8 inches (14.7 cm)
Depth	8.5 inches (21.6 cm)
Weight	3.8 pounds (1.7 kb)

Professional 325 and 350 Hard Disk Subsystem Specifications

Performance	Formatted Capacity	
Per drive	5 Mbytes	10 Mbytes
Per surface	1.25 Mbytes	2.5 Mbytes
Per track	8,192 bytes	8,192 bytes
Per sector	512 bytes	512 bytes
Sectors per track	16	16
Transfer rate	5 Mb/s	5 Mb/s
Average access time	170 msec	85 msec
Functional Specifications		
Rotational speed	3600 r/min	3600 r/min
Densities	254 tracks per inch	345 tracks per inch
Physical Description		
Height	3.3 in. (8.3 cm)	3.3 in. (8.3 cm)
Width	5.8 in. (14.6 cm)	5.8 in. (14.6 cm)
Depth	8.5 in. (20.4 cm)	8.5 in. (20.4 cm)
Weight	4.5 lb. (2.3 kg)	4.5 lb. (2.3 kg)

Professional 325 and 350 Keyboard Specifications

Electronics	8-bit microprocessor
	4 Kbytes of ROM
	256 bytes of RAM
	4 LEDs
	Speakers
Cord	6-foot (1.9 m), coiled
	4-pin telephone-type modular connectors
	Plugs into display monitor
Physical Description	Low profile, detachable
Height	2.0 inches (5 cm) at highest point
Length	21 inches (53.3 cm)
Width	6.75 inches (17.1 cm)
Weight	4.5 pounds (2 kg)

Keypad	Sculptured key array
Home Row Key Height	30 mm above desktop
Keys	105 matte textured-finished keys
	Concave surface
Size	0.50 inches (1.27 cm) square
Spacing	0.75 inches (1.9 cm) center-to-center (single-width keys)
Wobble	Less than .020 inches (0.5 mm)
Numeric Keypad	18 keys
Function Keys	36 keys; firmware- and software-driven
	20 function keys horizontally positioned beneath label strip
Diagnostics	Powerup self-test
	Generates identification code upon passing test

Professional 325 and 350 Video Monitor

Characters	7 x 10 dot matrix
	Includes 2-dot descenders
Format	24 Lines x 80/132 Characters
Physical Description	
Height	11.5 in (29.2 cm)
Width	13.75 in (34.9 cm)
Depth	12.25 in (31.1 cm)
Weight	14 lb (6.4 kg)
Cord	6-foot (1.9 m)
Adjustable Tilt	+ 5 to—25 Degrees
Video Format	Monochrome Composite

Hardware Options

- Integral 5 or 10 Mbyte hard disk drive and controller
- Z80 CP/M softcard with 64 Kbytes of memory
- 256 Kbyte memory option for increased memory
- Upgrade kit for converting a Professional 325 to a Professional 350
- Extended bit-map graphics option
- Telephone Management System with dual-port modem capability
- Voice unit for TMS (does not require an option slot)
- Realtime Interface module
- Choice of LA50 Personal Printer, Letterprinter 100, or LQP02 Letter-Quality Printer
- 13-inch color monitor (requires the Extended bit-map graphics option)
- System Unit stand for vertical floor mounting

Professional 325/350 Ordering Information

PC325D—	Professional 325 System Unit.
PC350D—	Professional 350 System Unit.
PC3K1-A—	Keyboard.
VR201-A—	Monochrome Video Monitor (white).
VR201-A—	Monochrome Video Monitor (green).
VR201-A—	Monochrome Video Monitor (amber).
VR241-AA—	Color Monitor.

• DECmate Office Workstation

The DECmate II can be easily converted to an office workstation through the addition of the Office Workstation software. This includes DECmate WPS version 2, with Easycom, and the CP/M 2.2 Operating System. For customer ordering convenience the Office Workstation software can be purchased as one unit at a cost lower than the sum of the individual pieces.

• DECmate Office Workstation Ordering Information

PC27X-AC—	DECmate WPS with Easycom and CP/M 2.2 Operating System.
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• DECmate II CP/M 2.2 Operating System Control Program for Microcomputers

Minimum Hardware Required

1PC2K1-A	Country kit, including language-specific documentation and keyboard
VR201-A	Black and white monitor
PC278-A	System unit with 6120 Single Board Computer and one dual RX50 drive
PC27X-AA	Z80 Auxiliary Processing Unit with 64 KB of user memory

Optional Hardware

RX50-AA	Dual RX50 add-on
PC27X-BA	RX01/RX02 Interface Module, used with RX01 or RX02 disk drive LA50, LA100, LQP02, LQPSE, and LA120 printers

Prerequisite Software

- None

Training Credits

- None

Software Installation

- Customer Installed

Support Category

- Digital Supported

• DECmate II CP/M 2.2 Ordering Information

This product is available only as the software component of the Z80 Auxiliary Processing Unit and is distributed on RX50 5¼" floppy diskette distribution media.

PC27X-AA—	Z80 APU, single-use license, binaries, documentation, support service.
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• DECmate II

DECmate II System Summary Specifications

Standard System	System unit, keyboard, display screen, and operating system.
System Unit	Small Box.
CPU	6120 (PDP-8) microprocessor.
Memory	64 Kwords (96 Kbyte equivalent)
Printer Port	Serial, RS232.
Communications Port	Asynch/synch, up to 9,600 baud with modem control
Storage	Dual diskette drive (2 x 400 Kbytes).
Video Output	Monochrome, RS170-compatible.
Operating System	WPS-8 word processing and COS-310 office automation software. CP/M-80
System Expansion	Three dedicated slots for option boards. User-installable

DECmate II System Unit and Power Supply Specifications

Physical Description	
Height	6.5 in. (16.5 cm)
Length	19 in. (48.3 cm)
Width	14.3 in. (36.3 cm)
Maximum Weight	30 lbs. (13.6 kg)
Power Supply Type	Transistor, Switch-Type AC to DC Converter
AC Input	Switch-Selectable
115 nominal	Single-phase, 3-wire 90-128V rms 47-63 Hz Line Frequency
230V nominal	Single-phase, 3-wire 174-256V rms 47-63 Hz Line Frequency
Line Current	3A @ 115 Vac 1.5A @ 230 Vac
AC Power Consumption	218 Watts
Regulated Voltages	+ 5V, + 12V, &—12V DC
Circuit Protection	Circuit Breaker, Externally Accessible

DECmate II Hard Disk Subsystem Specifications**Performance****Formatted Capacity**

Per Drive	5 Mbytes	10 Mbytes
Per Surface	1.25 Mbytes	2.5 Mbytes
Per Track	8,192 bytes	8,192 bytes
Per Sector	512 bytes	512 bytes
Sectors Per Track	16	16
Transfer Rate	5 Mb/s	5 Mb/s
Average Access Time	170 msec	85 msec

Functional Specifications

Rotational speed	3600 r/min	3600 r/min
Densities	254 tracks per inch	345 tracks per inch

DECmate II Diskette Subsystem Specifications**Performance**

Capacity/Drive	819 Kbytes
Diskettes Per Drive	2
Number of Recorded Surfaces	2
Per Track	5,120
Per Sector	512 bytes
Sectors Per Track	10
Transfer Rate	250 Kbytes/s
Average Access Time	290 msec

Functional Specifications

Rotational Speed	300 r/min
Densities	96 tracks per inch

Physical Description

Height	3.3 inches (8.4 cm)
Width	5.8 inches (14.7 cm)
Depth	8.5 inches (21.6 cm)
Weight	3.8 pounds (1.7 kb)

Physical Description

Height	3.3 in. (8.3 cm)	3.3 in. (8.3 cm)
Width	5.8 in. (14.6 cm)	5.8 in. (14.6 cm)
Depth	8.5 in. (20.4 cm)	8.5 in. (20.4 cm)
Weight	4.5 lb. (2.3 kg)	4.5 lb. (2.3 kg)

DECmate II Keyboard Specifications

Electronics	8-bit microprocessor
	4 Kbytes of ROM
	256 bytes of RAM
	4 LEDs
	Speakers
Cord	6-foot (1.9 m), coiled
	4-pin telephone-type modular connectors
	Plugs into display monitor
Physical Description	Low profile, detachable
Height	2.0 inches (5 cm) at highest point
Length	21 inches (53.3 cm)
Width	6.75 inches (17.1 cm)
Weight	4.5 pounds (2 Kg)
Keypad	Sculptured key array
Home Row Key Height	30 mm above desktop
Keys	105 matte textured-finished keys
	Concave surface
Size	0.50 inches (1.27 cmm) square
Spacing	0.75 inches (1.9 cm) center-to-center (single-width keys)
Wobble	Less than .020 inches (0.5 mm)
Numeric Keypad	18 keys

Function Keys	36 keys; firmware- and software-driven 20 function keys horizontally positioned beneath label strip
Diagnostics	Powerup self-test Generates identification code upon passing test

DECmate II Video Monitor Specifications

Characters

DECmate II	7 x 9 dot matrix Includes 2-dot descenders
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Format	24 lines x 80/132 characters
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Physical Description

Height	11.5 in (29.2 cm)
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Width	13.75 in (34.9 cm)
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Depth	12.25 in (31.1 cm)
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Weight	14 lb (6.4 kg)
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Cord	6-foot (1.9 m)
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Adjustable Tilt	+ 5 to -25 Degrees
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Video Format	Monochrome Composite
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Hardware Options

- Second dual diskette drive (2 x 400 Kbytes)
- RX02 8-inch diskette drive interface
- Z80 CP/M softcard with 64 Kbytes of memory
- Choice of LA50 Personal Printer, Letterprinter 100, or LQP02 Letter Quality Printer
- Hard disk drive
- System unit standard for vertical floor mounting

• DECmate II Ordering Information

The system unit contains the processor, main memory, option boards, diskette drives, communication ports, and power supply.

PC278-A—	DECmate II System Unit.
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PCXXF-BA—	Optional floorstand for system unit.
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VR201-A—	DECmate II Video Display.
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PC2K1-AA—	U.S. Keyboard.
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PC27X-AA—	CP/M-80 Option Board.
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• VT200 Family of Video Terminals

VT200 Family of Video Terminals Specifications

Display

VT220 CRT	30.5 cm (12 in.) diagonal measure; white, green, or amber phosphor; monochrome composite
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VT240 CRT	30.5 cm (12 in.) diagonal measure; white, green, or amber phosphor; monochrome composite
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VT241 CRT	33 cm (13 in.) diagonal measure, P4 phosphate, RGB color composite
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Text format	24 lines x 80 characters or 132 characters (keyboard- or host-selectable)
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VT240 series graphics format	800 horizontal x 240 vertical addressable points, two bits per point 800 x 480 logical address range for 2:1 picture aspect ratio
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Character	VT220: 7 x 9 dot-matrix with 2-dot descenders VT240 Series: 8 x 9 dot-matrix with 2-dot descenders
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Character size	3.35 mm x 2.0 mm (0.132 in. x 0.078 in.) in 80-column mode 3.35 mm x 1.3 mm (0.132 in. x 0.051 in.) in 132-column mode
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Character set	ASCII, U.K. National, Digital Special Graphics, and Digital Supplemental Character Sets (each 94 printing characters). The ASCII and Digital supplemental character sets make up Digital's multinational character set.
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Cursor type	Keyboard-selectable, blinking block character or blinking underline (text)
	Blinking diamond, visible when graphics mode is active (graphics)
	Crosshair, visible when graphics input mode is active
Keyboard	
General	105-key detachable unit with a 1.9 m (6 ft) coiled cord attached with a 4-pin telephone-type modular connector. Word processing versions and data processing versions are available in multiple languages and country kits.
Key layout	51-key arrangement and sculpturing similar to standard typewriter keyboard with an 18-key auxiliary keypad
Numeric keypad	18-key numeric keypad with period, comma, minus, enter, and 4 general purpose function keys
Function keys	36 keys, firmware and software driven
Height	5.0 cm (2.0 in.)
Width	53.3 cm (21 in.)
Depth	17.1 cm (6.8 in.)
Weight	2.0 kg (4.5 lbs)
Communications	
Type	Full-duplex, asynchronous (all models)
Interface	EIA RS-232-C and 20 mA, both standard
Speeds	75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19,200 b/s, keyboard selectable
Parity	7- and 8-bit: Even, odd, mark, space or none, keyboard selectable
	8-bit only: Mark and space
Character size	7- or 8-bit, keyboard selectable
Buffer prevention overflow/Synchronization control codes, selectable in Set-Up mode	Automatic generation of XON and XOFF
Echo	Local echo selectable in Set-Up mode

Power Requirements

Line voltage	90-128 V _{ax} RMS single phase, 3 wire; 180-268 Vac RMS single phase, 3 wire (switch-selectable)
Line frequency	47—63 Hz
Current (VT220)	0.48 A RMS at 120 Vac RMS
	0.24 A RMS at 240 Vac RMS
Current (VT240 Series)	2.2 A RMS at 90 Vac RMS
	1.1 A RMS at 180 Vac RMS
Power consumption (VT220)	60 W. maximum
Power consumption (VT240 Series)	107 W. maximum
Operating Environment	
Temperature	10° to 40°C (50° to 104°F)
Relative humidity	10% to 90% noncondensing
Maximum wet bulb	28°C (82°F)
Altitude	2.4 km (8,000 ft)
Physical Characteristics	
VT220 Monitor	
Height	28.3 cm (11.1 in.)
Width	33.3 cm (13.1 in.)
Depth	38.7 cm (15.3 in.)
Weight	11.8 kg (26 lbs)
VT240 Monitor	
Height	29.2 cm (11.5 in.)
Width	34.9 cm (13.8 in.)
Depth	31.1 cm (12.3 in.)
Weight	6.4 kg (14 lbs)

VT241 Monitor

Height	32.4 cm (12.8 in.)
Width	38 cm (15 in.)
Depth	42.1 cm (17 in.)
Weight	16.6 kg (36.6 lbs)

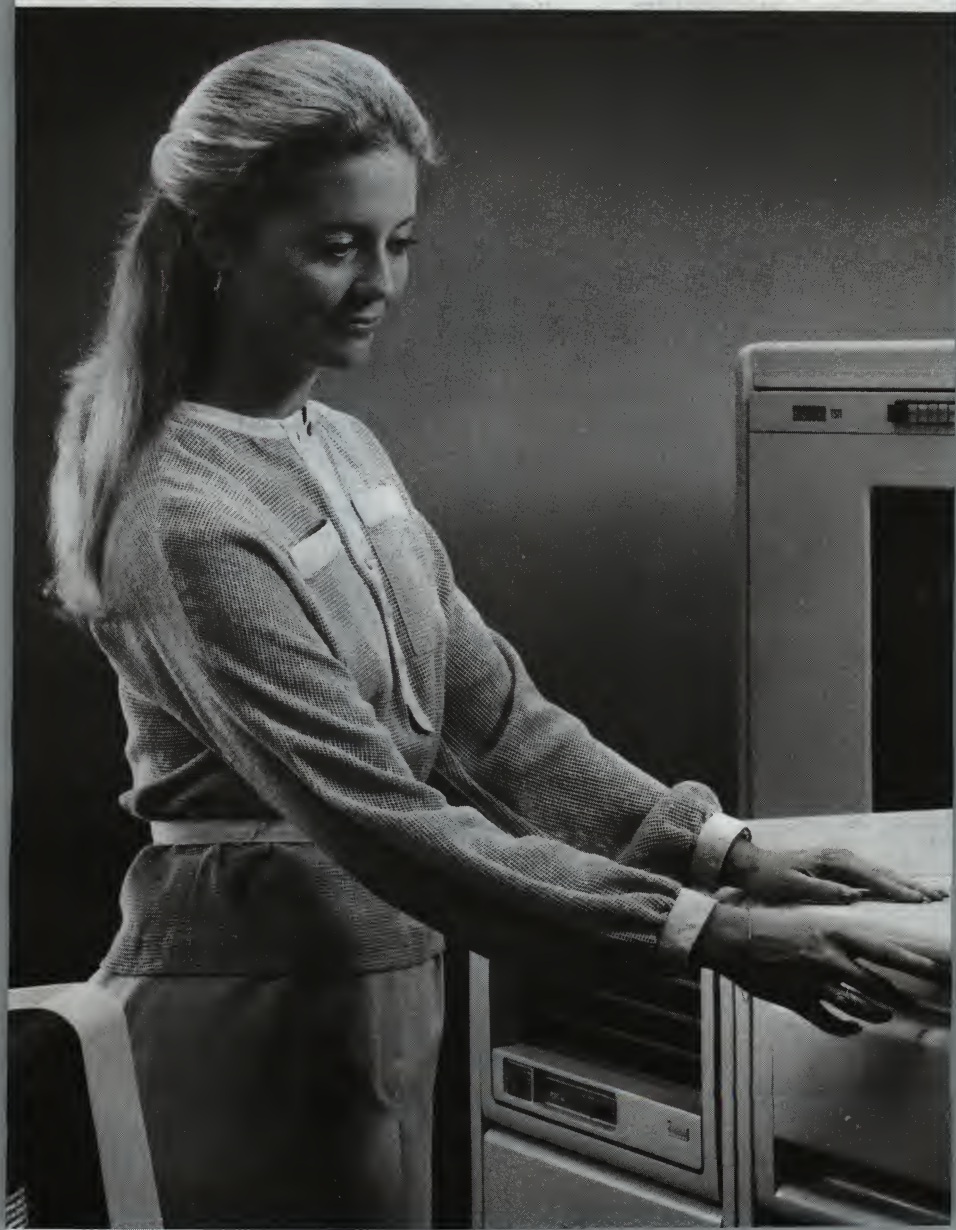
VT240 Series System Box

Height	8.8 cm (3.5)
Width	45 cm (18 in.)
Depth	30 cm (12 in.)
Weight	2.0 kg (4.5 lbs)

• **VT200 Series****Ordering Information**

VT220-A—	VT220 Terminal.
VT22K-BA—	VT220 Keyboard.
VT240-A—	VT240 Terminal.
VT24K-BA—	VT240 Keyboard.
VT241-A—	VT241 Terminal.
VT24K-BA—	VT241 Keyboard.

Section 3 • Storage Devices



Because information is the backbone of contemporary office systems, Digital has developed the VAX Information Architecture software system. It gives office systems an unmatched information management structure. Digital's disks and tapes, which set industry standards for high-performance mass storage, are part of this information management picture.

Digital Storage Architecture (DSA)

Operating within the framework of VAX Office Information Systems, is the Digital Storage Architecture (DSA). This exciting new concept comprises powerful storage products: disks, tapes, and unique intelligent controllers. The result of this winning combination is optimum performance, industry-leading data integrity, and outstanding uptime for mass storage systems.

Historically, various features of mass storage technology have advanced at different rates. With many systems, upgrading one segment of mass storage obsoletes other parts of the system. The system manager is faced, in this situation, with the expensive and disruptive proposition of replacing everything at once, to take advantage of available new technology. The DSA, however, allows new or additional mass storage hardware to be incorporated into a system quickly, easily, and without disruption or reprogramming. Because compatibility is a primary design requirement of all DSA products, system investment is protected, growth is made easy, and costs are lowered.

Mass Storage Summary

RA80 Disk Drive	Winchester technology 121 Mbytes (formatted) per drive Sealed head disk assembly protects the unit from environmental contamination and eliminates the need for head alignment and adjustment procedures
RA60 Disk Drive	High-capacity removable-media disk drive 205 Mbytes (formatted) per drive Digital's unique embedded servo system enhances reliability, maintenance, and disk pack interchange between drives
RA81 Disk Drive	Winchester technology 456 Mbytes capacity Integrated on-board microdiagnostics

TU78 Tape Drive	High-performance tape subsystem 1,600 or 6,250 bits per second (125 in/sec) 781 Kbyte-per-second transfer rate Automatic tape threading, inline micro- diagnostics, two-track error correction, dual access connect to more than one processor
UDA50 Controller	Microprocessor based (intelligent) disk con- troller for VAX or PDP-11 Supports any combination of four Digital disks
HSC50 I/O Server	High-performance mass storage I/O server for attaching large number of disks and tapes to multiple CPUs (up to 15)

Storage Devices

Product Specifications and Ordering Information

TU78 Magnetic Tape Subsystem	4-97
TU77 Magnetic Tape Subsystem	4-98
TU80 Magnetic Tape Subsystem	4-98
RX02 Floppy Disk Subsystem	4-99
RX50 Diskette	4-100
RL02 Cartridge Disk Drive	4-101
RD51 Disk Subsystem	4-102
RCD50-AA Disk Subsystem	4-102
RA60 Disk Subsystem	4-103
RA81 Disk Subsystem	4-104

• TU78 Magnetic Tape Subsystem

TU78 Specifications

Record Density	6,250 or 1,600
Read/Write Speed	125 in/s
Capacity Per 2,400 Ft Reel	145 MB with 8 Kbytes blocks (6,250 b/in)
	40 Mbytes with 8 Kbytes blocks (1,600 b/in)
Height	60 in (152.4 cm)
Width	28 in (71 cm)
Depth	30 in (76.2 cm)
Weight	630 lbs (286 kg)

• TU78

Ordering Information

TEU78-AB(AD)—	TU78 magnetic tape transport, formatter, and VAX-11/780 MASS-BUS adapter. PREREQUISITE: VAX-11/780.
TEU78-BB(BD)—	Dual-ported TU78 magnetic tape transport, formatter, and two VAX-11/780 MASSBUS adapters. PREREQUISITE: VAX-11/780.
TGU78-AB(AD)—	TU78 magnetic tape transport and VAX-11/750 MASSBUS adapter. PREREQUISITE: VAX-11/750.
TU78-AB(AD)—	TU78 magnetic tape transport and formatter (master)*. PREREQUISITE: VAX-11/780, MBA and round MASSBUS cable.
TU78-AF(AJ)—	TU78 magnetic tape transport (without formatter). PREREQUISITE: TEU78-AB(AD), TGU78-AB(AD) or TU78-AB(AD).
TM78-C—	TU78 dual-port kit containing drive logic and cables to provide dual-porting capability to a TEU78-AB(AD) or TU78-AB(AD). PREREQUISITE: TEU78-AB(AD), TGU78-AB(AD), or TU78-AB(AD).

*Note: Requires a TM78-C for dual-porting capability.

• TU 77

Specifications

Record Density	1,600 or 800 b/in
Read/Write Speed	125 in/sec
Capacity Per 2,400 Ft Reel	40 MB with 8 KB blocks (1,600 b/in) 20 MB with 8 KB blocks (800 b/in)
Height	60 in (152.4 cm)
Width	28 in (71 cm)
Depth	30 in (76.2 cm)
Weight	630 lbs (286 kg)

• TU77

Ordering Information

TEU77-AB(AD)—	TU77 magnetic tape transport and VAX-11/780 MASSBUS adapter. PREREQUISITE: VAX-11/780.
TGU77-AB(AD)—	TU77 magnetic tape transport and VAX-11/750 MASSBUS adapter. PREREQUISITE: VAX-11/750.
TJU77-AB(AD)—	TU77 magnetic tape transport and controller to interface to the PDP-11 UNIBUS. PREREQUISITE: UNIBUS PDP-11.
TWU77-AB(AD)—	TU77 magnetic tape transport and PDP-11/70 MASSBUS adapter. PREREQUISITE: PDP-11/70.
TU77-AF(AJ)—	TU77 magnetic tape transport. PREREQUISITE: TEU77-A, TGU77-A, or TJU77-A subsystem.

• TU 80

Specifications

Record Density	1,600
Read/Write Speed	125 in/s (start/stop) 25 and 100 in/s (streaming)
Capacity Per 2,400 Ft Reel	40 MB with 8 KB blocks (1,600 b/in)
Height	41.6 in (105.7 cm)
Width	21.25 in (54 cm)
Depth	30 in (76.2 cm)
Weight	225 lbs (102.5 kg)

• TU80
Ordering Information

 TU80-AA(AB)— TU80 Magnetic Tape Subsystem.

• RX02 Floppy Disk Subsystems
RX02 Specifications

Formatted Capacity Per Drive	0.5 MB (1 MB total)
Peak Transfer Rate	61 KB/s
Average Access Time*	262 msec
Average Seek Time	154 msec
Average Settling Time	25 msec
Average Latency time	83 msec
Dual-Port Option	No
Media Surfaces	1 data
Tracks Per Surface	77
Sectors Per Track	26
Bytes Per Sector	256
Track-Track Seek	6 msec
Rotational Speed	360 rpm
Drives Per Controller	2

• RX02
Ordering Information

RX211-BK(BM)—	Rack-mount dual RX02 floppy disk drives and controller to interface to the PDP-11 UNIBUS.
RX211-(BN)—	
RXV21-EP(ES)—	System Option. Table top dual RX02 floppy disk drive and controller to interface the LSI-11 Bus.
RXV21-(ET)—	
RXV21-EA(ED)—	Upgrade option for LSI-11 Bus. Order one of the following cabinet kits:
RXV21-(EC)—	
CK-RXV2E-KA—	Cabinet kit. For use with BA23 (MICRO/PDP-11).
CK-RXV2E-KB—	Cabinet kit. For use with BA11-M (PDP-11/23-S).
CK-RXV2E-KC—	Cabinet kit. For use with H349 (PDP-11/23-PLUS).

• **RX02 Accessories**

Ordering Information

RX02K-10—	Formula One™ floppy diskettes (case of ten).
RX01K-MT—	Floppy diskette case (holds ten).
RX01K-AE—	Floppy diskette binder (holds ten).
RX01K-AH—	Floppy diskette binder insert (package of ten).

• **RX50 Diskette**

RX50 Specifications

Formatted Capacity Per Diskette	409 KB
Peak Transfer Rate	250 KB/s
Average Seek Time	164 msec
Track-Track Seek	6 msec
Rotational Speed	300 rpm
Average Latency Time	100 msec
Dual-Drive Option	Standard
Formatted Capacity Per Controller	1.6 MB
Tracks Per Diskette	80
Sectors Per Track	10
Tracks Per Inch	96
Drives Per Controller	2

• **RX50**

Ordering Information

RX50-AA—	Dual Diskette Subsystem.
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• RL02 Cartridge Disk Drive

RL02 Specifications

Formatted Capacity Per Drive	10.4 MB
Peak Transfer Rate	512 KB/s
Average Access Time	67.5 msec
Average Seek Time	55 msec
Average Latency Time	12.5 msec
Dual-Port Option	No
Media Surfaces	2 data
Tracks Per Surface	512
Sectors Per Track	40
Bytes Per Sector	256
Track-Track Seek	15 msec
Rotational Speed	2400 rpm
Drives Per Controller	4

• RL02

Ordering Information

RL211-AK*—	RL02 top-loading, rack-mounting, removable-cartridge drive and controller with interconnect cabling.
RL02-AK—	Add-on cartridge drive. PREREQUISITE: RL211-AK.
RL02K-DC—	10.4 MB cartridge for the RL02.

• RL02 Accessories

Ordering Information

RL02K-DC—	RL02 cartridge disks.
RL02K-EF—	Error-free RL02 cartridge disks.
RL01K-AA—	RL01/RL02 cartridge disk cleaner.

• **RD51 Disk Subsystem**

RD51 Specifications

Formatted Capacity	10 Mbytes
Peak Transfer Rate	5 Mbits per second
Height	8.25 cm (3.25 in)
Width	14.60 cm (5.75 in)
Depth	20.44 cm (8.50 in)
Weight	2.27 kg (4.50 lb)

• **RD51**

RD51 Ordering Information

RCD51-AA	RD51 Disk Drive includes controller
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• **RCD50-AA Disk Subsystem**

RCD50-AA Specifications

Formatted Capacity	5 MB
Peak Transfer Rate	5 Mbits/sec
Height	3.25 in (8.25 cm)
Width	5.75 in (14.6 cm)
Depth	8.50 in (21.6 cm)
Weight	4.5 lb (2.27 kg)

• **RCD50-AA**

Ordering Information

RCD50-AA—	RCD50-AA Disk Subsystem and controller for PC350.
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• RA60 Disk Subsystem

RA60 Specifications

Formatted Capacity Per Drive	205 Mbytes
Peak Transfer Rate (To UDA50)	1.98 Mbytes/s
Average Access Time	50 ms
Average Seek Time	41.7 ms
Average Latency Time	8.33 ms
Dual-Port Capability	Standard (second I/O cable and controller are prerequisites)
Media Surfaces	6 data
Tracks Per Surface	1,600
Sectors Per Track	43 (16-bit words)

• RA60

Ordering Information

RUA60-CA(CD)—	RA60-AA cabinet-mounted disk drive and UDA50 controller. PREREQUISITE: PDP-11/44.
RUA60-JA(JD)—	RA60-AA cabinet-mounted disk drive and two UDA50 controllers. PREREQUISITE: PDP-11/44.
RA60-CA(CD)—	RA60-AA H9642-AP(AQ) cabinet-mounted disk drive, no controller. PREREQUISITE: RUA60-CA(CD), RUA60-JA(JD).
RA60-AA—	RA60 rack-mounted disk drive, no cabinet, no controller. PREREQUISITE: RUA60-CA(CD), RUA60-JA(JD).
RA60-P—	RA60 disk pack.
RA60-PB—	Five RA60-P disk packs.
RA60-PA—	Ten RA60-P disk packs.

• RA81 Disk Subsystem

RA81 Specifications

Formatted Capacity Per Drive	456 Mbytes
Peak Transfer Rate (To UDA50)	1.2 Mbytes
Average Access Time	36.3 ms
Average Seek Time	28 ms
Average Latency Time	8.33 ms
Dual-Port Capability	Standard (second I/O cable and controller are prerequisites)
Media Surfaces	7 data, 1 servo
Tracks Per Surface	1248
Sectors Per Track	52 (16-bit words)
Bytes Per Sector	512

• RA81

Ordering Information

RUA81-CA(CD)—	RA81 cabinet-mounted disk drive and UDA50 controller. PREREQUISITE: PDP-11/44, or VAX/VMS-based systems.
RA81-CA(CD)—	RA81 H9642 cabinet-mounted disk drive, no controller. PREREQUISITE: RUA81-CA(CD).
RA81-AA(AD)—	RA81 disk drive, no controller, no cabinet. PREREQUISITE: RUA81-CA(CD).

Section 4 • Printers



Digital manufactures printers that span a wide range of speeds, print qualities, and features, to meet the needs of individual office workers. Digital offers you a range of dependable printers because we know that different applications have different print requirements.

LN03 Laser Printer

The LN03 laser printer is a tabletop, nonimpact electronic printer. The LN03 prints at a maximum rate of eight pages per minute and has a print resolution of 300 by 300 dots per inch. It will accommodate preprinted or plain cutsheet paper in the standard (8.5 X 11 inch) and European (A4) sizes via the integral sheet feeder. The LN03 gives you, integrated in one unit, the speed of a line printer, the flexibility of a dot-matrix printer, and the high quality provided by a quiet, nonimpact, letter-quality printer.

Letterprinter 100

The Letterprinter 100 gives you speed and versatility. It produces drafts at a rate of up to 240 characters per second and delivers letter-quality printing at a rate of up to 40 characters per second. Not only does the Letterprinter 100 let you choose between different text modes but it also can handle your graphics printing. Versatility comes with the five different fonts that can be electronically selected. There are even special plug-in cartridges that give you access to many different fonts and special character sets. You can use either fanfold or cutsheet paper, and the multinational character set lets you print in 11 languages.

LQP03 Letter-Quality Printer

The LQP03 letter-quality printer offers a new expanded daisywheel containing 130 petals. It lets you use the full complement of Digital's national characters all on one wheel. Other wheels include scientific, mathematical, and other special characters. The desktop LQP03 printer is designed for use with all of Digital's personal computers, word processors, workstations, and video terminals.

LQP02 Letter-Quality Printer

With the LQP02 letter-quality printer you are assured of premium print quality every time. The daisywheel print mechanism provides a reliable print speed of 32 characters per second. And you can choose from a variety of print wheels providing different type styles and special-purpose fonts.



LA50 Personal Printer

The LA50 personal printer represents good value. This inexpensive, compact printer prints draft- and memo-quality documents at 100 and 50 characters per second, respectively, as well as graphics. You can use either fanfold or cutsheet paper, and the multinational character set lets you print in 11 languages.



LN01 Laser Printer

The LN01 laser printer combines premium-quality printing and extremely quiet operation. An electrophotographic process, which uses a print density of 300-by-300 dots per square inch, makes exceptional print quality possible. Using cutsheet paper, the LN01 can whip out 12 pages per minute.

LVP16 Color Graphics Pen Plotter

Digital's color graphics pen plotter, the LVP16, gives you high-quality color graphics that add sparkle to your text. Whether you're preparing a written proposal or a visual presentation, with the LVP16 you can add colorful graphs, charts, and tables to illustrate and emphasize your message on paper and transparencies. The LVP16's accuracy (to 0.001 inch) produces high-resolution printing that comes alive with hatch marks and bright colors. The LVP16 prints graphics at a fast 15 inches per second so you can have charts and graphs quickly.

Letterprinter 100

- Three printers in one, the Letterprinter 100 produces draft, letter-quality, and dot matrix printing:
 - Draft, 240 char/s
 - Letter, 30 char/s
 - Memo (optional), 80 char/s
 - With the Letterprinter 100 you can manually or electronically change fonts.
-

LA12 DECwriter Correspondent

- A portable terminal, with integral modem or acoustic coupler, the LA12 DECwriter Correspondent is capable of dot matrix printing, draft printing, and graphics.
-

LA120 DECprinter III

- A dependable, rugged, high-duty cycle printer, the LA120 DECprinter III produces dot-matrix and draft printing at 180 characters per second.
 - It handles one-to-six part forms (LA120-RA) or four-to-nine part forms (LA120-RB).
-

LA50 Personal Printer

- The LA50 Personal Printer is a low cost, compact printer ideal for personal or small business systems. It offers dot-matrix, draft (100-characters-per-second) and memo (50-characters-per-second) printing, as well as graphics.
-

LQP02 Letter-Quality Printer

- Producing letter-quality documents and correspondence, the LQP02 prints letters (32-characters-per-second) using daisy wheels.
-

LN01 System Printer

- The LN01 System Printer gives high-quality output on regular stationary.
 - 12 pages a minute saving labor, and eliminating the need for bursting and decollating.
-



Printers

Product Specifications and Ordering Information

Letterprinter 100	4-112
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• LA100 Letterprinter

Specifications

Baud Rate	50 to 9,600 b/s
Print Speed	240 characters/s in data mode 30 characters/s in correspondence mode 80 characters/s in enhanced printing may be ordered as an option
Slew Speed	12.7 cm/s (5 in/s)
Print Columns	217
Character Set	7-bit ASCII for 9 countries, plus ANSI-compatible escape sequences: 8-bit Digital-standard 169 multinational and VT100 line drawing graphics (for LA100-PC)
Characters Per Inch	5, 6, 6.6, 8.25, 10, 12, 13.2, 16.5
Characters	7 x 9 dot matrix impact printing in EDP mode; 33 x 9 dot matrix impact printing in memo mode; 33 x 18 dot matrix impact printing in correspondence mode; 132 x 72 dot matrix impact printing in graphics mode
Lines Per Inch	2, 3, 4, 6, 8, 12
Universal Power Supply	
Parity	Even, odd, or none; 7 or 8 bits per character, selectable

• LA100

Ordering Information

LA100-AA(AB)—	KSR hardcopy terminal.
LA100-BA(BB)—	LA100-AA(AB) with numeric keypad, tractors, and BC22A-10 cable.
LA100-CA(CB)—	LA100-BA(BB) plus multiple-font capability.
LA100-PC—	RO hardcopy terminal for use with Digital's personal computers, includes 8-bit DEC standard 169 multinational character set, U.S. COURIER-10, multinational COURIER-10, VT100 line-drawing character set, tractors, built-in multiple-font option.
LA100-RA(RB)—	English language RO printer with COURIER-10 and ORATOR-10 fonts.
LA100-YA(YB)—	LA100-RA plus tractors, BC22A-10 cable, ribbon cartridge, and 1 roll of paper.
LA100-ZA(ZB)—	LA100-YA(YB) plus multiple-font option.

*All A models are 120V, all B models are 220V.

• LA12 DECwriter Correspondent

Specifications

Baud Rate	50 to 9,600 b/s
Print Speed	150 character/s (text mode)
Slew Speed	5 in (12.7 cm)/s
Print Columns	40 to 132, user-selectable
Character Set	96-character ASCII set; 9 international sets; VT100 special graphics 27-character set; APL character set
Characters Per Inch	5, 6, 6.6, 8.25, 10, 12, 13.2, 16.5
Characters	9 x 9 dot matrix impact printing in text mode
Lines Per Inch	2, 3, 4, 6, 8, 12 host-selectable
Universal Power Supply, User-Selectable	
Parity	Switch-selectable to even, odd, or none; 7 or 8 bits per character selectable
VT100 Video Terminal Line Drawing Graphics Set	
Print Density	132 dots per inch horizontal; 72 dots per inch vertical (graphics mode)
Extensive Self-Contained User Diagnostics	

• LA12 DECwriter Correspondent Ordering Information

LA12-AB—	Compact hardcopy terminal with integral 1200 baud dial-through-the-keyboard modem, 300 baud coupler, EIA interface, and carrying case.
LA12-CB—	LA12 with integral 300 baud acoustic coupler, EIA interface and carrying case.
LA12-DB—	LA12 tabletop and console model with EIA interface only.
LAX12-U2—	Dial-through-the-keyboard 1200 baud integral modem upgrade for LA12-CB, -DB.
LAX12-U4—	300 baud acoustic coupler upgrade for LA12-DB.
LAX12-U5—	Enhanced microcode upgrade for LA12-A, -B, -C, -D.

• Letterprinter 210

General Specifications (Digital and IBM Models)

Performance Characteristics:

Print Speed (maximum)	240 char/s (draft) 40 char/s (letter) 80 char/s (memo), optional
Throughput speed	90 lines/min in draft mode at 132 columns
Print technology	Bidirectional, dot matrix
Print density:	
Draft-quality	7 by 9 dots per inch
Letter-quality	33 by 18 dots per inch
Memo-quality (optional)	33 by 9 dots per inch

Physical Characteristics:

Height	12.50 cm (5 in)
Width	53.75 cm (21.5 in)
Depth	33.75 cm (13.5 in)
Weight	12.15 kg (27 lb)

Power Requirements:

Voltage	120 V nominal (87-128 VAC range) or 240 V nominal (191-256 VAC range), switch- selectable
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Frequency	47 to 63 Hz
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Power Consumption	120 W, printing maximum
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Paper:

Type	Single sheet or fanfold
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Dimensions	8.8-37.2 cm (3.5-14.9 in) wide
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Multiple forms	Up to four parts
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Thickness	.038 cm (.015 in) maximum
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Digital Mode (Mode 0):

Bit map graphics	72 vertical by 74-330 horizontal dots per inch
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Aspect ratio	Variable—1.02, 1.12, 1.30, 1.53, 1.83, 2.29, 3.04, 4.58
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Character pitch	5.6, 6.6, 8.25, 10, 12, 13.2, or 16.5 char/in (draft mode); 5.6, 10, 12 char/in (near letter-quality mode)
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Line spacing	2, 3, 4, 6, 8, or 12 lines per inch
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Input buffer	2000 characters
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Communications:

Baud rates	50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600
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Split speeds	600 or 1200 receive with 75 or 150 transmit; 2400 or 4800 receive with 300 or 600 transmit
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Parity	Odd, even, mark, or space; 7 or 8 bits per character selectable
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• LA210**Ordering Information**

LA210-AA—	Letterprinter equipped with 120V power cord documentation.
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• LA120 DECwriter III Printing Terminal

Specifications

Baud Rate	50 to 9,600 b/s
Print Speed	180 characters/s
Lines Per Inch	2, 3, 4, 6, 8, 12
Slew Speed	5 in (12.7 cm)/s
Characters Per Inch	5, 6, 6.6, 8.25, 10, 12, 13.2 or 16.5
Characters	7 x 7 dot matrix
Character Set	7-bit ASCII plus ANSI-compatible escape sequences
Tabs	217 horizontal, 168 vertical
Font Sizes	8
Line Spacings	6
Parity	Odd, even, or none

• LA120

Ordering Information

LA120-DA—	DECwriter III KSR hardcopy terminal.
LA120-RA—	DECprinter III RO hardcopy terminal.

• LQP03 Printer

Specifications

Acoustical Output	60 dBA max
Character Pitches	10, 12 and 15 characters/inch
Data Interface	Serial RS-232C EIA Standard
Dimensions	50.8 cm (W) X 20.32 cm (H) X 38.1 cm (D) (20 in X 15 in X 8 in)
Environment, Operating	
Temperature	-10° to 38°C (50° to 100°F)
Humidity	10% to 90%
Environment, Storage	
Temperature	-10° to 70°C (14° to 158°F)
Humidity	2% to 98%
Fuse Rating	3 Amp, 250 Volt, Slo-blo, 3AG size

Paper Specifications (Manual Paper Feed)

Dimensions	30.5 cm (12 in) wide max (11 inch print line)
Weight	16 to 24 lbs.
Thickness	.03 cm (0.013 inch) max
Multi-part Forms	"top glued" or "snap out," 4 sheets max

Power Cord

Length	75 inches
Printer Plug	CEE22 6A
Outlet Plug	LQP03-AA: NEMA-5-15P LQP03-B: NEMA-6-15P

Power Requirements

LQP03-AA	90 to 132 VAC (57 to 63 Hz)
LQP03-B	180 to 264 VAC (47 to 53 Hz)
Power Consumption	100 W max

Print Speed	25 CPS, Shannon Text
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Printwheel Type	130 petal daisywheel, plastic
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Resolution

Horizontal	120 increments/inch
Vertical	48 increments/inch

Slew Speed

Horizontal	11 inch/sec min
Vertical	3 inch/sec min

Thermal Output	Approximately 410 BTU
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Weight	27 lbs
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• LQP03**Ordering Information**

LQP03-A—	Full character, 120V/60 Hz letter-quality printer, 130-character printwheel, and U.S. power cord. Does not include documentation.
LQP03-AA—	Full character, 120V/60 Hz letter-quality printer, 130-character printwheel, U.S. power cord and documentation.
LQP03-B—	Full character, 220-240V/50 Hz letter-quality printer and 130-character printwheel. Does not include power cord or documentation.

• LQP02 Letter-Quality Printer

Specifications

Baud Rate	
110 to 9,600 b/s	
Print Speed	32 characters/s (Shannon Text)
Print Method	Impact, daisy wheel
Print Columns	132 at 10 characters/in 158 at 12 characters/in
Character Set	Over 100 different, 7-bit ASCII
Characters Per Inch	10/12 variable, software-selectable
Lines Per Inch	6 or 8, variable, software-selectable
Variable Horizontal Tabs And Margins	
Paper	Cut sheet feeder option
Ribbon	Fabric or mylar
Universal Power Supply, User-Selectable	
Parity	Switch-selectable to odd, even, mark, or space; 7 bits per character

• LQP02

Ordering Information

LQP02-AA(AD)—	Letter-quality printer with Courier-10 font.
LQPX2-AA—	Bidirectional forms tractor option for use with fan-fold paper.
LQPXX-AC—	Dual-tray cut-sheet feeder for use with regular office stationery.
LQPXX-AD—	Dual-tray cut-sheet feeder for use with A4 size paper for European applications.
LQPX2-FB(FD)—	Acoustic cover for LQP02-AA(AD).

• LVP16 Color Graphics Plotter

Specifications

Plotting Characteristics

Pen velocity, each axis	Pen down: 38.1 cm/s (15 in/s maximum. Programmable from 1 to 38 cm/s in increments of 1 cm/s.
	Pen up: 50.8 cm/s (20 in/s)
Acceleration	Approximately 2 g's (19.62 m/s) at maximum programmed pen speed
	Approximately 0.5 g's (4.91) at all other pen speeds.
Resolution	0.025 mm (0.0098 in) (smallest addressable step size)
Repeatability	With a single pen: 0.0102 cm (0.004 in)
	From pen to pen: 0.0203 cm (0.008 in)

Physical Characteristics

Height	127 mm (5 in)
Width	568 mm (22.4 in)
Depth	367 mm (14.5 in)
Weight	7 kg (16 lb)

Media

Type	Paper	Transparency
Dimensions	ANSI A (8 x 11 in) ANSI B (11 x 17 in) ISO A4 (210 x 297 mm)	ANSI A (8 x 11 in) ISO A4 (210 x 297 mm)

ISO A3 (297 x 420 mm)

Character Sets

19 Character sets

ANSI ASCII, 9825 Character set, French/German, Scandinavian, Spanish/Latin American, JIS ASCII, Roman 8 Extensions, Katakana, ISO IRV (International Reference Version), ISO Swedish, ISO Swedish for Names, ISO Norway Version I, ISO German, ISO French, ISO United Kingdom, ISO Italian, ISO Spanish, ISO Portuguese, ISO Norway Version 2

Communications

Band Rates	75, 110, 150, 200, 300, 600, 1200, 2400, 4800, 9600
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Eavesdrop Capability	Eavesdrop cable allows connection to serial printer
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Power Requirements

Voltage	100, 120, 220, 240V
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Frequency	Range of 48 to 66 Hz
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Power Consumption	35W max
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Heat Dissipation	120 Btu/hr
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Operating Environment

Temperature	0 to 55°C (32 to 130°F)
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Relative Humidity	5 to 95% at 40°C (100°F)
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Nonoperating Environment

Temperature	-40 to 75°C (-100 to 165°F)
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LVP16**Ordering Information****Models**

U.S.	LVP16-AA, color graphics plotter with 120 volt power supply
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International	LVP26-BA, color graphics plotter with 240 volt power supply
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Options

BCC19-15	For interface to Rainbow and VAX systems
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BCC20-10	For interface to DECmate and Professional Series systems
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BCC2405	Eavesdrop cable for connection to serial printer
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LVPXX-AA	A3 Paper—50 sheets
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LVPXX-AB	A3 Paper—300 sheets
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LVPXX-AC	11 x 17 Paper—50 sheets
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LVPXX-AD	11 x 17 Paper—300 sheets
LVPXX-AE	A4 Paper—50 sheets
LVPXX-AF	A4 Paper—300 sheets
LVPXX-AH	A3 Transparencies—50 sheets
LVPXX-AJ	A4 Transparencies—50 sheets
LVPXX-AK	Carousels
LVPXX-AL	.3 mm Pens Blk/Red/Grn/Blu
LVPXX-AM	.7 mm Pens Blk/Red/Grn/Blu
LVPXX-AN	.3 mm Pens Org/Lime/Violet/Turq/Brn/Gld
LVPXX-AP	.7 mm Pens Org/Lime/Violet/Turq/Brn/Gld
LVPXX-AR	.3 mm Pens Blk/Red/Grn/Blu (Transp.)
LVPXX-AS	.6 mm Pens Blk/Red/Grn/Blu (Transp.)
LVPXX-AT	.3 mm Pens Blk/Org/Violet/Brn (Transp.)
LVPXX-AU	.6 mm Pens Blk/Org/Violet/Brn (Transp.)
LVPXX-AV	.7 mm Pens Black

• Optional Printer Cables

• Printer Cables

Ordering Information

The following cables are used to connect an LA50, LA100, or LQP02 printer to a DECmate II.

BCC05-25—	7.63 m (25 ft) printer cable.
BCC05-50—	15.25 m (50 ft) printer cable.
BCC05-A0—	30.48 m (100 ft) printer cable.

LNO 3**Specifications**

Printing Speed	8 pages per minute (approximately 333 char/s, at 2,500 char/page.)
Paper Feed	Adjustable 250-sheet cassette (20 lb paper) 250-sheet output sequenced
Paper Weight	16 to 24 lbs
Resolution	300 by 300 dots per inch (text); Simple business graphics up to 150 dots per inch
Paper Sizes	ANSI A: 21.6 cm x 27.9 cm (8.5 in x 11 in) European A4: 21 cm x 29.7 cm (8.3 in x 11.7 in)
Character Sets	Two 188-char. sets: technical, multinational
Portrait and landscape printing	
Communications Interface	CCITT RS232/V.24 Serial Interface
Dimensions	
Height	33.1 cm (13 in)
Width	33.4 cm (21 in)
Depth	40.7 cm (16 in)
Weight	28 kg (66 lbs)
Power Requirements	85-132 V at 50/60 Hz; 187-264 V at 50/60 Hz
Power Cord	3 m (10 ft) detachable
Noise Level	Less than 55 dB

For ordering information, please contact:

1-800-DIGITAL extension 700, or write:

Digital Equipment Corporation
Terminals Business Unit
129 Parker Street, PK03-1/9D
Maynard, MA 01754

• LN03 Laser Printer

Ordering Information

LN03-AA—	100/120V 50/60 Hz Shipaway kit includes LN03 laser printer, two toner cartridges, one OPC cartridge, AC power cord, one toner collection bottle, one package (250 sheets) letter size paper, and documentation.
LN03-A2—	100/120V 50/60 Hz Shipaway kit includes LN03 laser printer, two toner cartridges, one OPC cartridge, AC power cord, one toner collection bottle, one package (250 sheets) European A4 size paper, and documentation.
LN03-B2—	220/240 60 Hz Shipaway kit includes LN03 laser printer, two toner cartridges, one OPC cartridge, one toner collection bottle, one package (250 sheets) European A4 size paper, and documentation.

• LN01 Laser Printer

Specifications

Printing Speed	12 pages/min maximum
Character Sets	2 188-character fixed-space fonts
Print Modes	Portrait and landscape
Print Resolution	300 x 300 dots per square inch
Print Columns	Up to 132
Lines Per Inch	8.57 U.S. and Europe
Characters Per Inch	13.6 for U.S., 12.5 for Europe
Paper Handling	Cut-sheet plain paper, 2,250-sheet cassettes (16-24 lb paper)

Paper Sizes

- Standard—8.5 x 11 in (21.6 x 27.9 cm)
- Legal—8.5 x 14 in (21.6 x 35.6 cm)
- European—8.3 x 11.7 in (21 x 29.7 cm)

Noise Level	Less than 55 DbA
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LN01

Ordering Information

LN01-CA(CB)	Nonimpact 12 page/min laser printer with LP11 interface and 9.1 m (30-feet) cable.
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• LA50 Personal Printer

Specifications

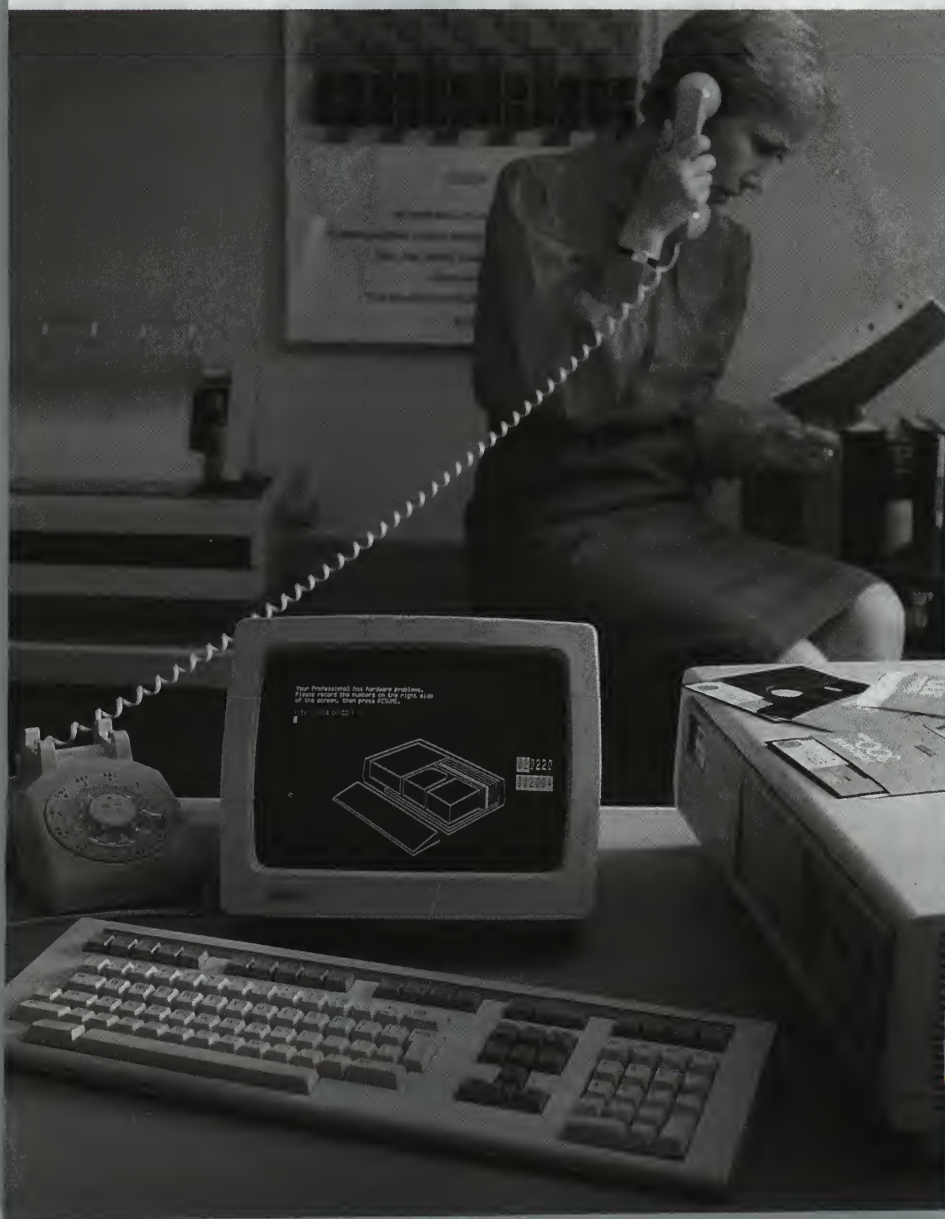
Baud Rate	110 to 4,800 b/s
Print Speed	100 characters/s (text mode); 50 character/s (enhanced print mode)
Print Columns	80 to 132
Character Set	94 displayable-character ASCII set, 81 multinational set (DIGITAL-standard), JIS Katakana set option, 27 VT100 special graphics (line drawing) set plus ANSI-compatible escape sequences.
Characters Per Inch	10, 12, 16.5 single width; 5, 6, 8.25 double width
Characters	7 x 9 dot matrix impact printing in text mode; 13 x 9 in enhanced print mode
Lines Per Inch	2, 3, 4, 6, 8, or 12
Parity	Switch-selectable to odd, even, mark, or space; 7 or 8 bits per character (selectable)
Print Density	144 or 180 dots per inch horizontal (switch-selectable) and 72 dots per inch vertical in graphics mode

• LA50

Ordering Information

LA50-RA—	Desktop printer with tractor feed, 110V power supply.
LA50-RB—	Desktop printer with tractor feed, 220V power supply.
LA50-RC—	Desktop printer with tractor feed, 240V power supply.

Chapter 5 • Service Capabilities



The quality and completeness of services are as important to the overall success of an office system as the system's hardware and software capabilities. Digital provides an unparalleled range of quality services to ensure the success of each ALL-IN-1 installation. These services are packaged and priced to allow you to select exactly the level and type of services required to complement your own staff.

Before an order is placed for a VAX ALL-IN-1 system, the sales and service team will prepare a Customer Support Plan. This Plan outlines, in detail, the support plan for your installation.

• Before the System Arrives

Digital support, through the sales and service team, begins well in advance of the installation date. This support includes a combination of Software Services, Educational Services and Field Service support.

Software Services office consultants provide office analysis and planning advice, sold as an independent consulting package. This helps you make all the pieces of your office information system—the business aims, the tools, the organization, the tasks, and the people fit together. Digital's professional analysts and planners work closely with all in your organization to record your goals, objectives, and expectations. They collect data on your operations and applications, the requirements of your people, and your business.

The result is a formal statement of findings and recommendations for implementing office information technology within your organization to achieve your stated goals. You receive facts you can use to choose the right tools to satisfy your business needs, facts to aid in your system implementation, and facts you can use to make a post-implementation study to determine your success. With this information, you and your people will be able to realize the benefits of a successful office information system.

Educational Services offers a full spectrum of quality training products and services—each designed to help you work smarter with your ALL-IN-1 system. To maximize your ALL-IN-1 investment, Educational Services will work with you to plan your training program in advance. It is recommended that training for your technical support personnel begin before your system arrives.

Training to help your business stay competitive is needed continually. To meet this need, Digital ensures that you have access to the best quality training. Whether you need to educate company executives and other nontechnical professionals, or train system managers and an entire office on ALL-IN-1, Educational Services has the right training answer for your needs.

The Digital sales representative serving you can arrange a computer access contract, which gives you access to an ALL-IN-1 system at one of our Regional Centers, before the scheduled installation date. This will help you get a head start on key applications development or training.

To meet your unique requirements, Digital's Computer Special Systems group can provide custom hardware or software and manufacture custom low-volume products.

Even before you buy a system, Field Service specialists will work with you, to help determine your specific maintenance needs. Once these needs are determined, they will work with your staff and your Digital sales representative to develop a comprehensive maintenance program. If appropriate, Field Service will arrange to have a planning specialist visit your site to assist in planning for the new system.

• **When the System Arrives**

Through our planning, your Digital Customer Support Plan will be in place prior to scheduled installation. This document defines exactly what you may expect and allows Digital's sales and service organizations to schedule resources to ensure a smooth installation.

When your system arrives, Digital's Field Service team will install it and ensure that the hardware is working properly. Your customer service representative then works with the Digital Final Test Group to make sure that all check lists and installation procedures are complete. This procedure guarantees a smooth installation and ensures that all required tasks are performed during field installation. Digital has established, well-defined quality goals to avoid such installation problems as missing parts, or manufacturing defects. After the system has successfully passed system hardware tests, the system software will be installed and fully tested.

For those ALL-IN-1 products that require Digital installation, a software specialist will install the software and verify that the system is complete.

• **Getting Started and Ensuring Your Success**

Customers may begin to use the general office functions of their ALL-IN-1 systems immediately upon installation due to the extensive support programs that Digital offers.

Because ALL-IN-1 software systems are complete, many customers begin to use the generic office functions it provides as soon as the system is installed.

Digital's Educational Services offers comprehensive and diversified educational programs to ensure that you and your users have the necessary level of expertise to use the system with top efficiency. Job-related curriculum provides a broad spectrum of high-quality, proven courses focusing on six areas:

-
- General computer education for the novice user

 - Education on specific products for the novice user

 - Software training

 - Hardware training

 - Management training

 - Seminars for technical professionals and decision-making

Educational Services

Educational Services provides training in several ways:

- *At Digital Training Centers*

Classroom instruction regularly scheduled at Digital's 40 training centers worldwide. These courses include intensive lecture discussion and hands-on laboratory sessions.

- *On-site training at your location*

Training conducted by Digital instructors may take place when and where the customer chooses. Onsite courses can be selected from Digital's standard offerings or tailored to meet your unique needs.

- *Licensing for training*

Educational Services will license customers who want to become self-sufficient in conducting Digital office training. Using professional training materials developed by Digital, customers can rely on their own inhouse resources for their training.

- *Learning centers*

Educational Services will work with you to establish an inhouse learning centers backed by Digital professionals. Our resident instructors can conduct training on the subject of your choice. Such a learning center at your site lets your employees explore new office applications with convenient access to hands-on training.

• *In addition, Educational Services offers:*

-
- *Self-paced Instruction*—Training that allows students to learn at their own pace. Self-paced instruction is available in a variety of formats including printed manuals, video-based instruction, and computer-based instruction.
 - *Seminars*—Conducted by Digital professionals and industry leaders at selected cities throughout the world, seminars provide intensive training in computer trends and state-of-the-art topics.
 - *Digital Press*—Digital's own publishing group produces publications that cover a broad scope of computing issues. Books include information on computing technology, management, business applications, general computer concepts, and the history of data.
-

Software Services

To help your technical support personnel get a running start, a Digital software specialist can offer a unique service, DECstart. It's proven combination of direct assistance, document review, discussion, and hands-on experience. DECstart services are conducted over a period of time to ensure mastery of the system and to reinforce the technical knowledge that your users have acquired in their training. Programmers and system managers go step-by-step through techniques required to effectively operate your system. DECstart helps managers keep an ALL-IN-1 system running smoothly, allows your personnel to gain experience, under supervision, in the troubleshooting of problems, and assists in setting up the system.

Digital's Software Services group offers a wide range of service options to supplement the standard DECstart package. Optional services are priced according to the time they require; you can obtain estimates for any services you may be considering.

As key team members, Software Services' Customer Support Representatives play a vital role in guiding your office users through the transition to office automation. They will work with your staff individually or in small groups. They introduce time-saving short cuts and techniques to make your staff comfortable with the system and accelerate the learning curve.

Customer Support Representatives can provide an individualized introduction to using the system, especially for high-level management. They can show users how to streamline routine office tasks, automate repetitive tasks, consult with each user on how best to use the system, and survey your staff and present you with survey results and progress reports. You benefit from these results with faster startup, increased productivity, and a quicker return on your computing investment.

Software professionals are specifically trained in Digital products and experienced in design, programming, and customizing software as well as tailoring ALL-IN-1 software to meet your specific requirements. Software specialists provide system analysis, application design review and optimization, and system application integration. Resources are available to perform specific project tasks, supplement or complement your programming staff, or manage projects from start to finish.

Professional services, ranging from programmer to project manager, are available on a per-call, resident, and a fixed-price basis for a given project.

Software services are available to support ALL-IN-1 customers during any stage of system analysis, software development, or implementation effort. These services start with the personal attention of a Digital software consultant and continue through the distribution of up-to-date software and software documentation.

Software Product Services provide informational, preventive, and remedial service. These services include updates to the latest software products, responses to reported software problems, and technical publications that contain programming notes and documentation corrections.

There are four kinds of services available for Digital's software products.

- *Software product updates.* Single major releases of software, including documentation. No software services are included in this package, but they may be purchased at per-call rates.
- *Self-maintenance service for software.* Tools are provided to let more experienced office system users maintain their own system software. These include software and documentation updates, newsletters, and Software Performance Reports, a formal software problem-reporting mechanism.
- *Basic Service for software.* This service is appropriate if you require some, but not total, support. Included are all the elements of self-maintenance service, plus telephone support for usage and remedial software questions, and access to Digital's software information network.
- *DECsupport service for software.* The most comprehensive software product service available. DECsupport includes all the elements of Basic Service, plus preventive maintenance, delivery and installation of updates and program change orders, and onsite remedial support for critical situations.

Ongoing software support helps keep software up-to-date and running smoothly. A full range of professional software services is available to assist customers through all phases of their office system implementation.

Field Service

All of the Office and Information Systems hardware products are fully supported by Digital Field Service. With the wide selection of service offerings, you can select the service package that meets your needs.

Digital Field Service offers the widest range of hardware services in the industry. Over 400 Digital Field Service locations in 38 countries provide quality and reliable service around the world. Today, there are over 12,000 trained field service engineers maintaining Digital products.

Digital recommends *DECservice* for its VAX office system customers. Features include a response commitment defined by your physical distance from a Digital service location, continued ongoing repair assurance (regardless of coverage hours), an assigned service account representative, all parts and labor, engineering changes, a site planning guide, and budget planning through a fixed monthly charge.

BASIC Service Agreement provides onsite maintenance and offers economy for customers who want remedial maintenance during call-window coverage hours.

Guaranteed Uptime is the first total system uptime guarantee in the industry. In this formal program, a customer works with Digital to select and maintain a standard of reliability—reliability that Digital will guarantee.

Automated Remote Diagnosis is the primary service tool for the VAX-11/780 and VAX-11/750. It is standard in the *DECservice* and the *BASIC Service* agreements and is the best method of supplying you with the highest possible level of service. Remote diagnosis provides customers with:

- Response within 15 minutes to telephone calls to the Digital Diagnosis Center (DDC), regardless of when the call is placed.
- A centralized, experienced staff available 24 hours a day, 7 days a week.
- Preventative maintenance diagnostics run during off hours prior to a site visit.
- Fast, accurate diagnosis.
- Engineers trained especially in the repair of specific devices.
- Backup support (internal technical consultation) provided through a terminal network for serious or intermittent problems.

Onsite and Carry-in Services for Workstations are available on a contracted or precall basis. One hundred and sixty carry-in service centers can help those who prefer to drop off their systems or components for service. Depending on the extent of the repair or service to be rendered, the turnaround time for carry-in service is from one to two days.

DECmailer Service is a mail-in service for those personal computer owners who can perform their own system maintenance. Within five days after Digital receives a logic board, we will return one that has been repaired and updated with the latest technological improvements.

• Programs to Address Your Overall Needs

Besides the services provided through the Digital service organizations, more information can be supplied by your sales representative.

- *DECUS*, the most active user's group in the industry, includes an Office Automation Special Interest Group (O/ASIG) to ensure that each DECUS Symposium includes information of interest to office systems users.
- *Insight*, Digital's quarterly customer newsletter, offers information of interest to all Digital customers.
- Product catalogs and handbooks provide up-to-date information about Digital's hardware and software offerings, to allow you to take full advantage of new products that will expand or enhance your systems.
- Product seminars inform customers of new products.
- Sales literature keeps you abreast of applications, product features, and services.

• **Satisfaction Guaranteed**

Digital is committed to your complete satisfaction with your ALL-IN-1 system. We're confident that we can provide the right products and services to help you solve critical business problems and we'll stand behind your investment in office and information systems.

To demonstrate our commitment to you, and the confidence we have in the quality of our products and services, we offer you a money-back guarantee that's unmatched by any other computer company. To ensure that your office system is as successful as you expect it to be, the ALL-IN-1 money-back guarantee gives you a system that is designed, implemented, and supported by Digital. It also provides you with the option to return the ALL-IN-1 system and get your money back if, within 180 days, you are not completely satisfied.

To qualify for the money-back guarantee, you and Digital must agree to the following:

-
- You order ALL-IN-1 per Digital's Standard Terms and Conditions.
-
- You agree to sign a contract addendum, The ALL-IN-1 Money-Back Guarantee, to be submitted with the order.
-
- You agree to purchase the recommended services, support, and education, per the Customer Support Plan.
-
- You participate in a periodic review with Digital to assess progress toward a successful installation.
-
- You agree to use only Digital products during the term of the guarantee (no third-party software).
-
- You notify Digital, in writing, if you choose to exercise the money-back option. Upon receipt of this notification, we will accept return of the hardware and software, and refund to you monies paid. This refund applies only to hardware and software licenses, and specifically excludes bundled or unbundled services.
-
- The return period covers 180 calendar days from the date the system is shipped from our facility.
-

PART III

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Appendix A • Additional Literature



If you need more information on the products described in this book, please contact your Digital Sales Representative.

Your Sales Rep will be glad to order any of the following documentation for you.

The ALL-IN-1 V2.0 Documentation Kits

A summary of the three ALL-IN-1 V2.0 documentation kits follows:

Complete Documentation set for ALL-IN-1 Office Menu V2.0 (QL-902)

ALL-IN-1 Office Menu Getting Started Guide (AA-N320B-TE)
ALL-IN-1 Office Menu User's Reference, Volume 1 (AA-DC65A-TE)
ALL-IN-1 Office Menu User's Reference, Volume 2 (AA-DC66A-TE)
ALL-IN-1 Office Menu Keypad Cards (AA-N322B-TE)
ALL-IN-1 Office Menu Application Programmer's Reference,
Volume 1: Flow Control (AA-N324B-TE)
ALL-IN-1 Office Menu Application Programmer's Reference,
Volume 2: Functions (AA-DC93A-TE)
ALL-IN-1 Office Menu Application Programmer's Reference,
Volume 3: Applications (AA-DC94A-TE)
ALL-IN-1 Office Menu Programmer's Mini-Reference (AA-Y186A-TE)
ALL-IN-1 Office Menu System Manager's Guide (AA-Y187A-TE)
ALL-IN-1 Office Menu Installation Guide (AA-N323B-TE)

The User Documentation Kit (QL-904)

ALL-IN-1 Office Menu Getting Started Guide (AA-N320B-TE)
ALL-IN-1 Office Menu User's Reference, Volume 1 (AA-DC65A-TE)
ALL-IN-1 Office Menu User's Reference, Volume 2 (AA-DC66A-TE)
ALL-IN-1 Office Menu Keypad Reference Cards (AA-N322B-TE)

The Customizable Documentation Kit (QL-905)

ALL-IN-1 Office Menu Writer's Guide (AA-DL78A-TE)
ALL-IN-1 Office Menu Style Guide (AA-DL77A-TE)
ALL-IN-1 Office Menu Getting Started/User's Reference Customizable
Tape (BB-DL79A-SE)

Appendix B • Digital Sales And Service Locations



Digital's sales and service personnel are trained to provide expert service that starts with presales consultations and extends through the full range of postsales services which only a major manufacturer can provide. These services include:

- Software and systems consulting and implementation
- Special hardware engineering and manufacturing
- Hardware and software maintenance
- Spare parts and supplies
- Logistic support to customers
- Customer training

Many of these services are rendered from the established Digital sales offices, others from facilities established exclusively for a single service function. Generally, each Digital sales and service office has sales personnel, field service (maintenance) personnel, and software services specialists. In addition, selected offices provide customer training and customer spares (parts) services.

In some countries, the three basic services (sales, field service, software services) are not necessarily provided from all local sales and service offices; they may be consolidated in a central location for better service effectiveness. And they may be provided by distributors who sell Digital's products, or by licensees whose products are manufactured under an agreement with Digital.

The list of sales and service locations which follows consists of three types of facilities:

1. Sales and service facilities which include all three services (sales, field service, software services).
2. Sales and service facilities which, in addition to the three basic services, provide additional service functions.
3. Facilities which have been established for a single service function.

There are two separate lists of facilities:

1. Sales and service locations in the United States.
2. Sales and service locations in Australia, Canada, Europe, and the Far East.

In searching for a facility in a specific country (or state in the United States), it should be noted that all facilities are arranged alphabetically, first by state or country and then by city.

UNITED STATES

ALABAMA

Birmingham

Sales Office

Digital Equipment Corporation
2 Riverchase Office Plaza
Suite 208
Birmingham, AL 35244
TEL: (205) 988-5433

Huntsville

Sales Office

Digital Equipment Corporation
555 Sparkman Dr.
Suite 1400
Huntsville, AL 35805
TEL: (205) 837-4010

Mobile

Field Service Office

Digital Equipment Corporation
1020 Downtowner Blvd.
Suite 110A
Mobile, AL 36609
TEL: (205) 432-2350

ALASKA

Anchorage

Field Service/Sales Office

Digital Business Center

Digital Equipment Corporation
471 W. 36th Ave.
Suite 104
Anchorage, AK 99503
TEL: (907) 279-0234

ARIZONA

Phoenix

Sales Office

Digital Equipment Corporation
2406 So. 24th St.
Suite E 112
Phoenix, AZ 85034
TEL: (602) 267-1364

Phoenix

Digital Business Center

Digital Equipment Corporation
Rosenweig Center
Suite C4
3800 No. Central Ave.
Phoenix, AZ 85012
TEL: (602) 277-4363

Tucson

Sales Office

Digital Equipment Corporation
6377 E. Tanque Verde Rd.
Suite 101
Tucson, AZ 85715
TEL: (602) 885-3551

Tucson

Digital Business Center

Digital Equipment Corporation
6377 E. Tanque Verde Rd.
Suite 149
Tucson, AZ 85715
TEL: (602) 885-3551

ARKANSAS

Little Rock

Sales Office

Digital Equipment Corporation
3 Innwood Circle
Little Rock, AR 72211
TEL: (501) 661-0303

CALIFORNIA

Bakersfield*Field Service/Sales Office*

Digital Equipment Corporation

1400 Easton Dr.

Suite 135 E

Bakersfield, CA 93309

TEL: (805) 322-1041

Colton*Field Service Office*

Digital Equipment Corporation

935 So. Mount Vernon Ave.

Suite 107

Colton, CA 92324

TEL: (714) 877-1731

Costa Mesa*Sales Office**Digital Business Center*

Digital Equipment Corporation

3390 Harbor Blvd.

Costa Mesa, CA 92626

TEL: (714) 979-2460

Culver City*Sales Office**Digital Business Center*

Digital Equipment Corporation

6101 W. Centinela Ave.

Suite One

P.O. Box 3890

Culver City, CA 90230

TEL: (213) 417-5011

El Segundo*Aerospace/Commercial**Sales Office*

Digital Equipment Corporation

831 So. Douglas St.

Suite 119

El Segundo, CA 90245

TEL: (213) 973-1818

Fresno*Field Service/Sales Office*

Digital Equipment Corporation

4709 No. El Capitan

Suite 101

Fresno, CA 93711

TEL: (209) 275-0955

Irvine*Sales Office*

Digital Equipment Corporation

24 Executive Park

Suite 100

Irvine, CA 92714

TEL: (714) 979-7593

Livermore*Field Service Office*

Digital Equipment Corporation

2111 Research Dr., Unit 3

Livermore, CA 94550

TEL: (415) 455-0145

Los Angeles*Field Service Office**Educational Services Center*

Digital Equipment Corporation

4311 Wilshire Blvd.

Suite 400

Los Angeles, CA 90019

TEL: (213) 937-3870

Milbrae*Field Service Office*

Digital Equipment Corporation

800 El Camino Real

Suite B

Milbrae, CA 94030

TEL: (415) 872-1956

Modesto*Field Service Office*

Digital Equipment Corporation

1620 No. Carpenter Rd.

Suite D-45

Modesto, CA 95351

TEL: (209) 521-0275

Oakland*Sales Office*

Digital Equipment Corporation
1151 Harbor Way Pkwy.
Alameda, CA 94501
TEL: (415) 769-3000

Reseda*Sales Office*

Digital Equipment Corporation
18040 Sherman Way,
Suite 400
Reseda, CA 91335
TEL: (213) 708-0778

Ridgecrest*Field Service Office*

Digital Equipment Corporation
1653 No. Triangle Dr.
Ridgecrest, CA 93555
TEL: (714) 446-6575

Sacramento*Digital Business Center*

Digital Equipment Corporation
501 J. St.
Suite 100
Sacramento, CA 95814
TEL: (916) 448-8518

Sacramento*Sales Office*

Digital Equipment Corporation
9719 Lincoln Village Dr.
Suite 406
Sacramento, CA 95827
TEL: (916) 362-2420

San Diego*Sales Office*

Digital Equipment Corporation
5471 Kearny Villa Rd.
P.O. Box 85033
San Diego, CA 92138
TEL: (619) 268-2679

San Diego*Digital Business Center*

Digital Equipment Corporation
949 Second Ave.
San Diego, CA 92101
TEL: (714) 232-0888

San Francisco*Sales Office*

Digital Equipment Corporation
101 California St.
32nd Floor
San Francisco, CA 94111
TEL: (415) 399-3600

San Francisco*Digital Business Center*

Digital Equipment Corporation
369 Pine St.
San Francisco, CA 94104
TEL: (415) 392-0284

Santa Barbara*Sales Office*

Digital Equipment Corporation
5320 Carpenteria Ave.
Carpenteria, CA 93013
TEL: (805) 684-8641

Santa Clara*Sales Office**Educational Services Center*

Digital Bookstore
Digital Equipment Corporation
2525 Augustine Dr.
Santa Clara, CA 95051
TEL: (408) 748-4427

Santa Monica*Field Service Office*

Digital Equipment Corporation
2950 31st St.
Suite 300
Santa Monica, CA 90405
TEL: (213) 450-9411

Sherman Oaks*Digital Business Center*

Digital Equipment Corporation
15436 Ventura Blvd.
Sherman Oaks, CA 91403
TEL: (213) 501-5256

Sunnyvale*Field Service Office*

Digital Equipment Corporation
632 East Caribbean Dr.
Sunnyvale, CA 94089
TEL: (408) 734-4915

West Covina*Sales Office*

Digital Equipment Corporation
1900 W. Garvey Ave. South
Suite 350
West Covina, CA 91790
TEL: (213) 960-9561

COLORADO

Arvada*Sales Office*

Digital Equipment Corporation
7828 Vance Dr.
Suite 100
Arvada, CO 80003
TEL: (303) 425-9604

Colorado Springs*Field Service/Sales Office**Digital Diagnosis Center*

Digital Equipment Corporation
301 Rockrimmon Blvd. South
Colorado Springs, CO 80919
TEL: (303) 599-4111

Colorado Springs*Telephone Support Center*

Digital Equipment Corporation
4405 No. Chestnut St.
Colorado Springs, CO 80907
TEL: (303) 599-0549

Colorado Springs*Digital Business Center*

Digital Equipment Corporation
25 No. Cascade Ave.
Suite 101
Colorado Springs, CO 80903
TEL: (303) 578-5400

Denver*Sales Office*

Digital Equipment Corporation
8850 E. Arapahoe Rd.
Englewood, CO 80112
TEL: (303) 773-6535

Denver*Digital Business Center*

Digital Equipment Corporation
Ptarmigan Place
3773 Cherry Creek Dr. North
Suite 140
Denver, CO 80209
TEL: (303) 388-6853

CONNECTICUT

Bridgeport*Sales Office*

Digital Equipment Corporation
500 Sylvan Ave.
Bridgeport, CT 06606
TEL: (203) 371-6947

Hartford*Field Service/Sales Office*

Digital Equipment Corporation
Corporate Center West
433 So. Main St.
W. Hartford, CT 06110
TEL: (203) 244-1800

Meriden*Sales Office**Digital Business Center*

Digital Equipment Corporation
1 Medway Park
599 Research Parkway
Meriden, CT 06450
TEL: (203) 634-5367

New London*Field Service Office*

Digital Equipment Corporation
393 Bayonet St.
New London, CT 06320
TEL: (203) 442-4014

Stamford*Digital Business Center*

Digital Equipment Corporation
66 Broad St.
Stamford, CT 06901
TEL: (203) 325-4111

DELAWARE**Laurel***Field Service Office*

Digital Equipment Corporation
Route 13 North
P.O. Box 637
Laurel, DE 19956
TEL: (302) 875-4220

Wilmington*Sales Office*

Digital Equipment Corporation
1 Pike Creek Center
New Linden Hill Rd.
Wilmington, DE 19808
TEL: (302) 995-2111

DISTRICT OF COLUMBIA*Digital Business Center*

Digital Equipment Corporation
International Square
1850 K St. Northwest
Washington, DC 20006
TEL: (202) 466-8926

Field Service/Sales Office

Digital Equipment Corporation
2nd Floor
1825 Eye St. Northwest
Washington, DC 20006
TEL: (202) 429-9200

FLORIDA**Jacksonville***Field Service/Sales Office*

Digital Equipment Corporation
Norco Executive Center
6620 Southpoint Dr. South
Suite 150
Jacksonville, FL 32216
TEL: (904) 731-0992

Maitland*Sales Office*

Digital Equipment Corporation
2300 Maitland Center Pkwy.
Suite 140
Maitland, FL 32751
TEL: (305) 660-2100

Melbourne*Field Service/Sales Office*

Digital Equipment Corporation
Building C
Suite 1
50 Woodlake Dr. West
Palm Bay, FL 32905
TEL: (305) 729-6111

Miami*Sales Office**Digital Business Center*

Digital Equipment Corporation

18425 N.W. 2nd Ave.

Suite 200

Miami, FL 33169

TEL: (305) 652-6841

Pensacola*Field Service/Sales Office*

Gulf Coast Office Building

4700 Bayou Blvd.

Building 3

Pensacola, FL 32503

TEL: (904) 478-6753

Sarasota*Field Service Office*

Digital Equipment Corporation

2114 Bispham Rd.

Suite 4

Sarasota, FL 33581

TEL: (813) 921-4431

Tampa*Sales Office*

Digital Equipment Corporation

405 North Reo St.

Suite 100

Tampa, FL 33609

TEL: (813) 879-9760

Tampa*Digital Business Center*

Digital Equipment Corporation

5100 W. Kennedy Blvd.

Suite 150

Tampa, FL 33609

TEL: (813) 879-9790

GEORGIA**Atlanta***Sales Office*

Digital Equipment Corporation

5775 Peach Tree Dunwoody Rd.

Suite 100D

Atlanta, GA 30342

TEL: (404) 257-2422

Atlanta*Digital Business Center*

Digital Equipment Corporation

Trust Company Tower

25 Park Place Northeast

Suite 100

Atlanta, GA 30303

TEL: (404) 523-2105

Atlanta*Customer Services**Product Support Center*

Digital Equipment Corporation

360 Interstate No. Pkwy.

Suite 600

Atlanta, GA 30339

TEL: (404) 953-0953

Atlanta*National Sales Desk*

Digital Equipment Corporation

360 Interstate No. Pkwy.

Suite 560

Atlanta, GA 30339

TEL: (404) 953-8080

Columbus*Field Service Office*

Digital Equipment Corporation

2609 Cross Country Dr.

Suite 929

Columbus, GA 31906

TEL: (404) 563-2910

Norcross*Field Service Office*

Digital Equipment Corporation
6400 Atlantic Blvd.
Suite 100
Norcross, GA 30071
TEL: (404) 448-6261

Warner Robins*Field Service/Sales Office*

Digital Equipment Corporation
1532 Watson Blvd.
Warner Robins, GA 31093
TEL: (912) 929-2598

HAWAII**Honolulu***Sales Office*

Digital Equipment Corporation
222 No. School St.
Honolulu, HI 96817
TEL: (808) 531-4306

IDAHO**Boise***Field Service/Sales Office*

Digital Equipment Corporation
202 So. Cole Rd.
Boise, ID 83709
TEL: (208) 322-0130

ILLINOIS**Arlington Heights***Sales Office*

Digital Equipment Corporation
No. Atrium Centre
Building. #1
1155 W. Dundee Rd.
Arlington Heights, IL 60004
TEL: (312) 394-6003

Calumet City*Field Service Office*

Digital Equipment Corporation
Narco River Business Center
1600 167th St.
Suite 3
Calumet City, IL 60409
TEL: (312) 891-9101

Champaign*Field Service Office*

Digital Equipment Corporation
1711 So. Neil St.
Suite A
Champaign, IL 61820
TEL: (217) 352-2774

Chicago*Sales Office*

Digital Equipment Corporation
5600 Apollo Dr.
Rolling Meadows, IL 60008
TEL: (312) 640-5543

Chicago*Digital Business Center 1*

Digital Equipment Corporation
Merchandise Mart Plaza
Suite 150
Chicago, IL 60654
TEL: (312) 527-0730

Chicago*Digital Business Center 2*

Digital Equipment Corporation
Woodfield Commons West
1037 E. Golf Rd.
Schaumburg, IL 60194
TEL: (312) 843-7857

Chicago*Chicago Loop Sales Office*

Digital Equipment Corporation
1 No. Wacker Dr.
Suite 605
Chicago, IL 60606
TEL: (312) 263-3240

Naperville*Field Service Office*

Digital Equipment Corporation
1717 No. Naper Blvd.
Suite 108
Naperville, IL 60540
TEL: (312) 369-8850

Northfield*Field Service Office*

Digital Equipment Corporation
191 Waukegan Rd.
Northfield, IL 60093
TEL: (312) 446-6930

Peoria*Sales Office*

Digital Equipment Corporation
2400 No. Main St.
East Peoria, IL 61611
TEL: (309) 694-4231

Schaumburg*Digital Servicerter**Field Service Office**Product Repair Center*

Digital Equipment Corporation
1207 E. Remington Rd.
Suites B-D, H-N
Schaumburg, IL 60195
TEL: (312) 640-5612

Springfield*Field Service Office*

Digital Equipment Corporation
3085 Stevenson Dr.
Suite 201
Springfield, IL 62707
TEL: (217) 529-6781

Westchester*Field Service Office*

Digital Equipment Corporation
10001 Derby Lane
Westchester, IL 60153
TEL: (312) 343-8118

INDIANA

Fort Wayne*Field Service Office*

Digital Equipment Corporation
4618 E. State Blvd.
Suite 125
Fort Wayne, IN 46815
TEL: (219) 482-9539

Indianapolis*Sales Office*

Digital Equipment Corporation
11611 No. Meridian St.
Carmel, IN 46032
TEL: (317) 848-3386

South Bend*Field Service Office*

Digital Equipment Corporation
1639 No. Ironwood Dr.
South Bend, IN 46635
TEL: (219) 277-0571

IOWA

Bettendorf*Sales Office*

Digital Equipment Corporation
4711 Brady St., #1
Davenport, IA 52806
TEL: (319) 388-0320

Cedar Rapids*Field Service Office*

Digital Equipment Corporation
810 First Ave. Northeast
Cedar Rapids, IA 52402
TEL: (319) 399-4600

Des Moines*Field Service/Sales Office*

Digital Equipment Corporation
625-629 E. 2nd St.
Des Moines, IA 50309
TEL: (515) 282-0056

KANSAS

Wichita

Field Service/Sales Office

Digital Equipment Corporation

1919 Amidon Ave.

Suite 101

Wichita, KS 67203

TEL: (316) 722-7856

KENTUCKY

Henderson

Field Service Office

Digital Equipment Corporation

936 8th St.

Henderson KY 42420

TEL: (502) 827-2849

Lexington

Field Service Office

Digital Equipment Corporation

386 Waller Ave.

Lexington, KY 40504

TEL: (606) 278-9413

Louisville

Sales Office

Digital Equipment Corporation

Nolan Building

2100 Gardiner Lane

Suite 117

Louisville, KY 40205

TEL: (502) 459-7476

Louisville

Digital Business Center

Digital Equipment Corporation

406 W. Main St.

Louisville, KY 40202

TEL: (502) 589-1122

LOUISIANA

Baton Rouge

Field Service Office

Digital Equipment Corporation

4354 So. Sherwood Forest Blvd.

Suite 150

Baton Rouge, LA 70816

TEL: (504) 292-2141

Metairie

Sales Office

Digital Equipment Corporation

Two Lakeway Center

3850 No. Causeway Blvd.

Suite 400

Metairie, LA 70002

TEL: (504) 832-8200

Monroe

Field Service Office

Digital Equipment Corporation

Suite F

2204 Liberty Ave.

Monroe, LA 71204

TEL: (318) 323-0558

Shreveport

Field Service Office

Digital Equipment Corporation

920 Pierremont Rd.

Suite 102

Shreveport, LA 71106

TEL: (318) 861-5200

MAINE

Augusta

Digital Business Center

Digital Equipment Corporation

500 Civic Center Dr.

Augusta, ME 04330

TEL: (207) 623-6691

Portland*Field Service/Sales Office*

Digital Equipment Corporation
28 Atlantic Place
South Portland, ME 04106
TEL: (207) 774-6600

MARYLAND**Baltimore***Sales Office**Digital Business Center*

Digital Equipment Corporation
6707 White Stone Rd.
Baltimore, MD 21207
TEL: (301) 298-1516

Baltimore*Digital Business Center*

Digital Equipment Corporation
120 W. Fayette St.
One Center Plaza
Baltimore, MD 21201
TEL: (301) 837-8970

Landover*Sales Office*

Digital Equipment Corporation
8301 Professional Place
Landover, MD 20785
TEL: (301) 459-7900

Landover*Software Services Office*

Digital Equipment Corporation
8300 Professional Place
Landover, MD 20785
TEL: (301) 792-0811

Landover*Educational Services Center*

Digital Equipment Corporation
8100 Corporate Dr.
Landover, MD 20785
TEL: (301) 577-9300

Lanham*Digital Servicercenter*

Digital Equipment Corporation
9730 George Palmer Highway
Lanham, MD 20706
TEL: (301) 459-4084

Odenton*Sales Office*

Digital Equipment Corporation
Academy Junction Plaza
419 Telegraph Rd.
Odenton, MD 21113
TEL: (301) 674-5550

MASSACHUSETTS**Auburn***Field Service Office*

Digital Equipment Corporation
19 Midstate Dr.
Auburn, MA 01501
TEL: (617) 832-5991

Bedford*Corporate Educational Services**The Digital Bookstore*

Digital Equipment Corporation
12 Crosby Dr.
Bedford, MA 01730
TEL: (617) 276-4413

Boston*Sales Office**Digital Business Center*

Digital Equipment Corporation
175 Federal St.
Boston, MA 02110
TEL: (617) 426-0300

Burlington*Sales Office*

Digital Equipment Corporation
1 Burlington Woods Dr.
Burlington, MA 01803
TEL: (617) 273-6589

Burlington*Sales Office*

Digital Equipment Corporation
5 Burlington Woods Dr.
Burlington, MA 01803
TEL: (617) 229-7162

Burlington*Education Services Center**Field Service Office*

Digital Equipment Corporation
30 North Ave.
Burlington, MA 01803
TEL: (617) 273-7679

Burlington*Digital Business Center*

Digital Equipment Corporation
Market Place Mall
82 Mall Rd.
Burlington, MA 01803
TEL: (617) 273-4240

Holyoke*Sales Office*

Digital Equipment Corporation
489 Whitney Ave.
Suite 300
Holyoke, MA 01040
TEL: (413) 536-8391

Lowell*Product Repair Center*

Digital Equipment Corporation
205 Industrial Ave. East
Lowell, MA 01852
TEL: (617) 459-4568

Somerville*Field Service Office*

Digital Equipment Corporation
Assembly Square
5 Middlesex Ave.
Somerville, MA 02145
TEL: (617) 628-7170

Stow*Field Operations/Sales Headquarters*

Digital Equipment Corporation
40 Old Bolton Rd.
Stow, MA 01775
TEL: (617) 496-9929

Waltham*Sales Office*

Digital Equipment Corporation
235 Wyman St.
Waltham, MA 02154
TEL: (617) 895-5476

Westford*Customer Services*

Digital Equipment Corporation
P.O. Box 2038
Westford, MA 01886
TEL: (617) 692-1152

MICHIGAN

Ann Arbor*Field Service Center*

Digital Equipment Corporation
2813 Boardwalk Dr.
Ann Arbor, MI 48104
TEL: (313) 995-5600

Detroit*Sales Office*

Digital Equipment Corporation
21333 Haggerty Rd.
Novi, MI 48050
TEL: (313) 348-8900

East Detroit*Field Service Office*

Digital Equipment Corporation
26091 Sherwood Dr.
Suite 2
Warren, MI 48092
TEL: (313) 758-3660

Farmington*Field Applications Center*

Digital Equipment Corporation
24730 Crestview Ct.
Farmington Hills, MI 48018
TEL: (313) 471-6450

Flint*Field Service Office*

Digital Equipment Corporation
G2377 So. Linden Rd.
Suite C
Flint, MI 48504
TEL: (313) 733-6380

Grand Rapids*Field Service Office*

Digital Equipment Corporation
5369 44th St. Southeast
Grand Rapids, MI 49508
TEL: (616) 957-1670

Kalamazoo*Sales Office*

Digital Equipment Corporation
5320 Holiday Terr.
Suite 200
Kalamazoo, MI 49009
TEL: (616) 375-6300

Lansing*Field Service Office*

Digital Equipment Corporation
302 So. Waverly Rd.
Lansing, MI 48917
TEL: (517) 321-7273

Midland*Field Service Office*

Digital Equipment Corporation
4012 W. Wackerly Rd.
Midland, MI 48640
TEL: (517) 631-1128

MINNESOTA

Minneapolis*Sales Office*

Digital Equipment Corporation
Metro Office Park
2901 Metro Dr.
Suite 400
Minneapolis, MN 55420
TEL: (612) 853-9746

Minneapolis*Digital Business Center*

Digital Equipment Corporation
WCCO Building
629 Second Ave. South
Minneapolis, MN 55402
TEL: (612) 340-9250

MISSISSIPPI

Jackson*Field Service Office*

Digital Equipment Corporation
460 Briarwood Dr.
Suite 12B
Jackson, MS 39206
TEL: (601) 957-2702

MISSOURI

Columbia*Field Service Office*

Digital Equipment Corporation
East Gate Office Building
2100 E. Broadway
Suite 300
Columbia, MO 65201
TEL: (314) 874-1191

Kansas City*Sales Office*

Digital Equipment Corporation
6700 Corporate Dr.
Suite 101
Kansas City, MO 64120
TEL: (816) 483-5340

St. Louis*Digital Business Center*

Digital Equipment Corporation
Northwest Plaza Shopping Center
305 Northwest Plaza
St. Ann, MO 63704
TEL: (314) 291-0774

St. Louis*Sales Office*

Digital Equipment Corporation
Creve Coeur Executive Office Park
655 Craig Rd.
P.O. Box 27320
St. Louis, MO 63141
TEL: (314) 991-6400

Springfield*Field Service Office*

Digital Equipment Corporation
3 Corporate Sq.
Suite 3-111
Springfield, MO 65804
TEL: (417) 882-7333

MONTANA

Billings*Field Service Office*

Digital Equipment Corporation
550 No. 31st St.
Suite 102
Billings, MT 59101
TEL: (406) 248-1863

NEBRASKA

Omaha*Sales Office*

Digital Equipment Corporation
10822 Old Mill Rd.
Suite 6
Omaha, NE 68154
TEL: (402) 330-0493

NEVADA

Las Vegas*Field Service/Sales Office*

Digital Equipment Corporation
1850 E. Flamingo Rd.
Suite 130
Las Vegas, NV 89109
TEL: (702) 737-3145

Reno*Field Service Office*

Digital Equipment Corporation
2105 Capurro Way
Suite B
Sparks, NV 89431
TEL: (702) 331-6330

NEW HAMPSHIRE

Bedford*Sales Office*

Digital Equipment Corporation
47 Constitution Dr.
Bedford, NH 03102
TEL: (603) 472-8821

Nashua*Digital Business Center*

Digital Equipment Corporation
522 Amherst St.
Nashua, NH 03063
TEL: (603) 884-8800

NEW JERSEY

Cherry Hill

Small Systems/Terminals

Field Service Office

Digital Equipment Corporation

1790 E. Route 70

Cherry Hill, NJ 08003

TEL: (609) 665-8711

Cherry Hill

Sales Office

Digital Equipment Corporation

6 Cherry Hill Executive Campus
Route 70

Cherry Hill, NJ 08002

TEL: (609) 665-8711

Holmdel

Communications Sales Office

Digital Equipment Corporation

960 Holmdel Rd.

Holmdel, NJ 07733

TEL: (201) 946-9403

Parsippany

Sales Office

Digital Business Center

Digital Equipment Corporation

4 Wood Hollow Dr.

Parsippany, NJ 07054

TEL: (201) 386-5666

Piscataway

Sales Office

Digital Equipment Corporation

Corporate Park 287

10 Corporate Place South

Piscataway, NJ 08854

TEL: (201) 981-9333

Princeton

Sales Office

Product Repair Center

Digital Equipment Corporation

U.S. Rte. 1

CN-2

Princeton, NJ 08540

TEL: (609) 452-2940

NEW MEXICO

Albuquerque

Sales Office

Digital Equipment Corporation

P.O. Box 499

5700 Kirchner Blvd. Northeast

Albuquerque, NM 87103

TEL: (505) 345-4471

Los Alamos

Sales Office

Digital Equipment Corporation

800 Trinity Dr.

Los Alamos, NM 87544

TEL: (505) 662-2011

NEW YORK

Albany

Sales Office

Digital Equipment Corporation

Corporate Plaza East

Washington Ave. Ext.

Albany, NY 12203

TEL: (518) 869-8461

Big Flats

Field Service/Sales Office

Digital Equipment Corporation

Professional Building

Suite 1

315 Route 352

Big Flats, NY 14814

TEL: (607) 562-8411

Binghamton*Field Service/Sales Office*

Digital Equipment Corporation
Oakdale Medical Center
700 Harry L Dr.
Johnson City, NY 13790
TEL: (607) 252-2223

Buffalo*Sales Office*

Digital Equipment Corporation
490 Center Rd.
West Seneca, NY 14224
TEL: (716) 675-7230

Fairport*Sales Office*

Digital Equipment Corporation
800 Perinton Hills Office Park
Fairport, NY 14450
TEL: (716) 223-2360

Fairport*Sales Office Annex*

Digital Equipment Corporation
530 Crosskeys Office Park
Fairport, NY 14450
TEL: (716) 223-2360

Fresh Meadow*Field Service Office*

Digital Equipment Corporation
174-15 Horace Harding Expressway
Fresh Meadow, NY 11365
TEL: (212) 357-7117

Garden City*Digital Business Center*

Digital Equipment Corporation
Roosevelt Field
300 Garden City Plaza
Garden City, NY 11530
TEL: (516) 741-6484

Ithaca*Sales Office*

Digital Equipment Corporation
704 W. Clinton St.
Ithaca, NY 14850
TEL: (602) 277-1670

Liverpool*Sales Office*

Digital Equipment Corporation
290 Elwood Davis Rd.
Suite 315
Liverpool, NY 13088
TEL: (315) 451-6550

Melville*Sales Office*

Digital Equipment Corporation
1 Huntington Quadrangle
Suite 1507
Melville, NY 11747
TEL: (516) 694-4131

New York*Field Service/Sales Office*

Digital Equipment Corporation
One Penn Plaza
8th Floor
New York, NY 10119
TEL: (212) 971-6774

New York*Digital Business Center 1*

Digital Equipment Corporation
One Penn Plaza
I Level
New York, NY 10119
TEL: (212) 971-3300

New York*Digital Business Center 2*

Digital Equipment Corporation
71 Broadway
New York, NY 10006
TEL: (212) 422-4780

New York*Wall Street Sales Office*

Digital Equipment Corporation
65 Broadway St.
New York, NY 10006
TEL: (212) 742-9063

New York*Downtown Commercial Field
Service Office*

Digital Equipment Corporation
19 Rector St.
11th Floor
New York, NY 10006
TEL: (212) 943-7275

New York*Uptown Commercial Field Service
Office*

Digital Equipment Corporation
220 E. 42nd St.
15th Floor
New York, NY 10017
TEL: (212) 309-0600

Rome*Field Service Office*

Digital Equipment Corporation
1721 Black River Blvd.
Rome, NY 13440
TEL: (315) 451-6550

Tarrytown*Sales Office**Digital Business Center*

Digital Equipment Corporation
200 White Plains Rd.
Tarrytown, NY 10591
TEL: (914) 684-5775

NORTH CAROLINA

Chapel Hill*Sales Office*

Digital Equipment Corporation
800 Eastowne Dr.
Suite 100
Chapel Hill, NC 27514
TEL: (919) 493-2531

Charlotte*Sales Office*

Digital Equipment Corporation
8301-L Arrowridge Blvd.
Charlotte, NC 28224
TEL: (704) 523-1602

Charlotte*Digital Business Center*

Digital Equipment Corporation
818 Tyvola Blvd.
Suite 105
Charlotte, NC 28210
TEL: (704) 525-5090

Kernersville*Field Service Office*

Digital Equipment Corporation
802 Birch Lane
Kernersville, NC 27284
TEL: (919) 996-5735

Winston Salem*Field Service Office*

Digital Equipment Corporation
8064 No. Point Blvd.
Suite 110
Winston Salem, NC 27106
TEL: (919) 727-0654

NORTH DAKOTA

Fargo*Field Service Office*

Digital Equipment Corporation
1323 23rd St. South
Fargo, ND 58102
TEL: (701) 293-7144

OHIO

Akron*Field Service/Sales Office*

Digital Equipment Corporation
470 Portage Lakes Dr.
Akron, OH 44319
TEL: (216) 644-2200

Cincinnati*Sales Office*

Digital Equipment Corporation
11305 Reed Hartman Highway
Suite 111
Cincinnati, OH 45241
TEL: (513) 489-2500

Cincinnati*Digital Business Center*

Digital Equipment Corporation
Central Trust Tower
4th and Vine Streets
Suite 100
Cincinnati, OH 45202
TEL: (513) 241-0888

Cleveland*Sales Office*

Digital Equipment Corporation
Building 1
3733 Park East
Cleveland, OH 44122
TEL: (216) 831-6000

Cleveland*Digital Business Center*

Digital Equipment Corporation
Union Commerce Building
1903 E. 9th St.
Cleveland, OH 44114
TEL: (216) 241-6180

Columbus*Sales Office*

Digital Equipment Corporation
6400 E. Broad St.
Columbus, OH 43213
TEL: (614) 868-1900

Columbus*Digital Business Center*

Digital Equipment Corporation
Borden Building
180 E. Broad St.
Columbus, OH 43215
TEL: (614) 868-1900

Dayton*Sales Office*

Digital Equipment Corporation
7200 Poe Ave.
Dayton, OH 45414
TEL: (513) 898-0920

Toledo*Field Service Office*

Digital Equipment Corporation
1345 Tomahawk Dr. East
Suite H
Maumee, OH 43537
TEL: (419) 891-1195

OKLAHOMA

Oklahoma City*Sales Office*

Digital Equipment Corporation
4334 Northwest Expressway
Suite 253
Oklahoma City, OK 73116
TEL: (405) 840-5651

Tulsa*Sales Office*

Digital Equipment Corporation
Koger Executive Center
4150 So. 100 East Ave.
Cherokee Building
Suite 100
Tulsa, OK 74145
TEL: (918) 664-1330

OREGON

Eugene*Field Service Office*

Digital Equipment Corporation
72 Centennial Loop
Eugene, OR 97401
TEL: (503) 687-2260

Portland*Sales Office*

Digital Equipment Corporation
9570 S.W. Barbur Blvd.
Portland, OR 97219
TEL: (503) 245-1341

Portland*Digital Business Center*

Digital Equipment Corporation
2020 S.W. Fourth Ave.
Portland, OR 97201
TEL: (503) 223-8727

PENNSYLVANIA

Allentown*Branch Office*

Digital Equipment Corporation
1621 No. Cedar Crest Blvd.
Suite 105
Allentown, PA 18104
TEL: (215) 433-3234

Blue Bell*Sales Office*

Digital Equipment Corporation
Whitpain Office Campus
Building B
1740 Walton Rd.
Blue Bell, PA 19422
TEL: (215) 825-4200

Erie*Field Service/Sales Office*

Digital Equipment Corporation
140 W. 13th St.
Erie, PA 16501
TEL: (814) 454-8688

Harrisburg*Sales Office*

Digital Equipment Corporation
4000 Vine St.
Middletown, PA 17057
TEL: (717) 944-1412

Monroeville*Sales Office*

Digital Equipment Corporation
Executive House
First Floor
339 Haymaker Rd.
Monroeville, PA 15146
TEL: (412) 856-7200

Philadelphia*Digital Business Center*

Digital Equipment Corporation
Centre Square West
1500 Market St.
Philadelphia, PA 19102
TEL: (215) 568-3530

Pittsburgh*Digital Business Center*

Digital Equipment Corporation
The Kossman Building
Forbes and Stanwix Streets
Pittsburgh, PA 15222
TEL: (412) 765-2751

State College*Field Service Office*

Digital Equipment Corporation
1402 So. Atherton St.
State College, PA 16801
TEL: (814) 238-0316

RHODE ISLAND

Providence*Sales Office*

Digital Equipment Corporation
5 Catamore Blvd.
E. Providence, RI 02914
TEL: (401) 438-6750

SOUTH CAROLINA

Columbia*Sales Office*

Digital Equipment Corporation
Saluda Building
Suite 123
101 Executive Center Dr.
Columbia, SC 29210
TEL: (803) 798-9494

Greenville*Field Service/Sales Office*

Digital Equipment Corporation
Marion Building
650 Executive Center Dr.
Suite 100, B-105
Greenville, SC 29615
TEL: (803) 288-8427

TENNESSEE

Knoxville*Sales Office*

Digital Equipment Corporation
9041 Executive Park Dr.
Suite 234
Knoxville, TN 37923
TEL: (615) 690-1521

Memphis*Sales Office*

Digital Equipment Corporation
825 Crossover Lane
Suite 220
Memphis, TN 38117
TEL: (901) 761-6792

Nashville*Sales Office*

Digital Equipment Corporation
287 Plus Park Blvd.
Suite A
Nashville, TN 37217
TEL: (615) 361-5404

TEXAS

Amarillo*Field Service Office*

Digital Equipment Corporation
Amarillo Building
414 W. 8th St.
Amarillo, TX 79101
TEL: (806) 373-4032

Austin*Sales Office*

Digital Equipment Corporation
6937 No. Interregional Highway
Suite 116
Austin, TX 78752
TEL: (512) 458-1281

College Station*Field Service/Sales Remote Site*

Digital Equipment Corporation
412 Tarrow Ave.
Suite L
College Station, TX 77846
TEL: (409) 775-0166

Corpus Christi*Field Service Office*

Digital Equipment Corporation
5262 So. Staples Dr.
Suite 140
Corpus Christi, TX 78411
TEL: (512) 993-3740

Dallas*Sales Office*

Digital Equipment Corporation
12100 Ford Rd.
Suite 200
Dallas, TX 75234
TEL: (214) 620-2051

Dallas*Educational Services Center*

Digital Equipment Corporation
12100 Ford Rd.
Suite 110
Dallas, TX 75234
TEL: (214) 620-2051

Dallas*Digital Business Center*

Digital Equipment Corporation
1625 W. Mockingbird Lane
Suite 114
Dallas, TX 75235
TEL: (214) 631-2520

El Paso*Field Service/Sales Office*

Digital Equipment Corporation
4100 Rio Bravo St.
Suite 200
El Paso, TX 79902
TEL: (915) 544-6211

Fort Worth*Sales Office*

Digital Equipment Corporation
6800 Manhattan
Suite 401
Fort Worth, TX 76112
TEL: (817) 457-1041

Houston*Sales Office*

Digital Equipment Corporation
6200 Savoy Dr.
Suite 1000
Houston, TX 77036
TEL: (713) 977-7575

Houston*Digital Business Center*

Digital Equipment Corporation
2 Post Oak Central
1980 So. Post Oak
Houston, TX 77056
TEL: (913) 840-0730

Lubbock*Field Service/Sales Office*

Digital Equipment Corporation
Megaron Building
8212 Ithaca
Suite W6
Lubbock, TX 79423
TEL: (806) 797-1814

San Antonio**Sales Office****Digital Business Center**

Digital Equipment Corporation

4335 Northwest Loop 410

San Antonio, TX 78229

TEL: (512) 349-2840

Webster**Field Service Office**

Digital Equipment Corporation

100 E. Nasa Rd. One

Suite 103

Webster, TX 77598

TEL: (713) 332-2651

UTAH**Salt Lake City****Sales Office****Digital Business Center**

Digital Equipment Corporation

3950 So. 700 East

Salt Lake City, UT 84107

TEL: (801) 268-3392

VERMONT**Burlington****Field Service/Sales Office**

Digital Equipment Corporation

20 Kimball Ave.

So. Burlington, VT 05401

TEL: (802) 864-5244

VIRGINIA**Fairfax****Sales Office**

Digital Equipment Corporation

Eskridge Center

2929 Eskridge Rd.

Fairfax, VA 22031

TEL: (703) 698-5390

Lynchburg**Sales Office**

Digital Equipment Corporation

104 Candlewood Ct.

Lynchburg, VA 24502

TEL: (804) 237-6262

Norfolk**Sales Office**

Digital Equipment Corporation

Pembroke Office Park

Pembroke #5

Suite 525

Virginia Beach, VA 23462

TEL: (804) 497-0819

Richmond**Sales Office**

Digital Equipment Corporation

Commerce Plaza Building

2809 Emerywood Pkwy.

Suite 200

Richmond, VA 23229

TEL: (804) 285-1700

WASHINGTON**Bellevue****Sales Office**

Digital Equipment Corporation

11040 Main St.

Bellevue, WA 98004

TEL: (206) 455-8471

Bellevue**Digital Business Center**

Digital Equipment Corporation

10900 N.E. 4th St.

Bellevue, WA 98004

TEL: (206) 462-2400

Spokane*Field Service Office*

Digital Equipment Corporation
No. 300 Mullen St.
Suite 101
Spokane, WA 99206
TEL: (509) 926-1904

Tacoma*Field Service/Sales Office*

Digital Equipment Corporation
10027 So. Tacoma Way
Building G
Suite H
Tacoma, WA 98499
TEL: (206) 453-5500

WEST VIRGINIA

Charleston*Sales Office*

Digital Equipment Corporation
1 Dunbar Plaza
Suite D
Dunbar, WV 25064
TEL: (304) 768-7527

Westover*Field Service Office*

Digital Equipment Corporation
124A Holland Ave.
Westover, WV 26505
TEL: (304) 296-5539

WISCONSIN

Appleton*Field Service Office*

Digital Equipment Corporation
Lincoln Pkwy.
3033 W. Spencer St.
Appleton, WI 54911
TEL: (414) 739-2548

Brookfield*Sales Office*

Digital Equipment Corporation
Bishops Wood Office Park
165 Bishops Way
Suite 100
Brookfield, WI 53005
TEL: (414) 784-1311

Lacrosse*Field Service Office*

Digital Equipment Corporation
333 Buchner Place
Lacrosse, WI 54601
TEL: (608) 782-4215

Madison*Field Service/Sales Office*

Digital Equipment Corporation
1846 Hoffman
Suite 110
Madison, WI 53704
TEL: (608) 241-2357

Schofield*Field Service Office*

Digital Equipment Corporation
1328 Schofield St.
Schofield, WI 54476
TEL: (715) 359-4214

**AUSTRALIA, CANADA,
EUROPE, AND THE FAR
EAST**

ARGENTINA

Buenos Aires*Argentina Distributor*

Coasin Computacion
Moreno 490
Buenos Aires 1091
Argentina

AUSTRALIA

Adelaide

Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
199 Ward St.
P.O. Box 232
North Adelaide 5006
South Australia

Aitken Vale

Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
1st Floor
Commonwealth Bank Building
Nathan St.
Aitken Vale, Queensland 4814
Australia

Albury

Field Service Office

Digital Equip. Corp. Australia
Pty. Ltd.
553 Kiewa St., 2nd Floor
Albury, New South Wales 2640
Australia

Alice Springs

Field Service/Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
c/o Collins Radio Corporation
Wilkinson St.
Alice Springs, Northern
Territory 5750
Australia

Armidale

Field Service Office

Digital Equip. Corp. Australia
Pty. Ltd.
University of New England
Armidale, New South Wales 2351
Australia

Braddon Act

Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
28 Lonsdale St.
Braddon Act 2601
Australia

Brisbane

Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
Scottish Amicable House
265 Coronation Dr.
Milton, Queensland 4064
Australia

Cairns

Field Service Office

Digital Equip. Corp. Australia
Pty. Ltd.
Suite 5, Pentagon Building
29 Grafton St.
Cairns 4870
Australia

Chatswood

Sales Office

Educational Services Center
Digital Equip. Corp. Australia
Pty. Ltd.
Northern Tower
Railway St.
P.O. Box 384
Chatswood, New South Wales 2067
Australia

Darwin

Field Service/Sales Office

Digital Equip. Corp. Australia
Pty. Ltd.
P.O. Box 4819
47 Mitchell St.
Darwin, Northern Territory 5790
Australia

Hobart*Sales Office*

Digital Equip. Corp. Australia

Pty. Ltd.

200 Elizabeth St.

Hobart, Tasmania 7000

Australia

Launceston*Field Service Office*

Digital Equip. Corp. Australia

Pty. Ltd.

62A Tamar St.

Launceston, Tasmania 7250

Australia

Mackay*Field Service Office*

Digital Equip. Corp. Australia

Pty. Ltd.

c/o Computer Service Bureau

Dunkeld Gardens Victoria St.

Mackay, Queensland 4740

Australia

Melbourne*Sales Office*

Digital Equip. Corp. Australia

Pty. Ltd.

836-850 Whitehorse Rd.

Box Hill, Victoria 3128

Australia

Newcastle*Sales Office*

Digital Equip. Corp. Australia

Pty. Ltd.

Griffith Trade Center

57 Crescent Rd., Unit 7

Waratah, New South Wales 2298

Australia

Perth*Sales Office*

Digital Equip. Corp. Australia

Pty. Ltd.

41-43 Ord St.

West Perth, Western Australia 6005

Australia

Pymble*Field Service Office**Product Repair Center*

Digital Equip. Corp. Australia

Pty. Ltd.

10-12 West St.

Pymble, New South Wales 2073

Australia

Rockhampton*Field Service/Sales Office*

Digital Equip. Corp. Australia

Pty. Ltd.

Heritage Building, Suite 6

Corner Quay and William Streets

Rockhampton, Queensland 4700

Australia

Sydney*Field Service Office*

Digital Equip. Corp. Australia

Pty. Ltd.

48-56 Epsom Rd.

Waterloo, New South Wales 2017

Australia

Wollongong*Field Service Office*

Digital Equip. Corp. Australia

Pty. Ltd.

T & G Building, 1st Floor

Crown St., Suite 10

Wollongong, New South Wales 2500

Australia

AUSTRIA

Vienna

Sales Office

Digital Equipment Corporation
GMBH

Shopping City Sued

Postfach 3

A-2334 Vosendorf-Sued

Austria

BAHRAIN

Manama

Bahrain Distributor

National Computer Services LTD

P.O. Box 26766

Chamber of Commerce Building

Manama

Bahrain

BELGIUM

Brussels

Field Service/Sales Office

Digital Equipment NVSA

Rue De L'Aeronef, 1

Luchtschipstraat, 1

B-1140 Evere

Belgium

BERMUDA

Hamilton

Bermuda Distributor

Business Systems Limited

53 Union St.

Hamilton 5-25

Bermuda

BRAZIL

Rio de Janeiro

Sales Office

Digital Equip. Comercio E

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Avenida Presidente Wilson

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Brazil

Sao Paulo

Sales Office

Digital Equip. Comercio E

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Avenida 9 De Julho, 3741

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CANADA

Arvida

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Digital Equipment of Canada, Ltd.

429 Bauman St.

Jonquiere, Quebec G7S 4S4

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Burlington

Sales Office

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Calgary

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Dartmouth, Nova Scotia B2Y 2N6
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Edmonton**Sales Office**

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Edmonton, Alberta T6N 1C5
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Kanata**Field Service/Sales Office**

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100 Herzberg Rd.
Kanata, Ontario K2K 2A6
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Kingston**Sales Office**

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Progress Square
745 Gardiners Rd.
Kingston, Ontario K7M 3Y5
Canada

Kitchener**Remote Service Point**

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25 Bruce St.
Kitchener, Ontario N2B 3J8
Canada

London**Sales Office**

Digital Equipment of Canada, Ltd.
240 Wharnccliffe Rd. North
London, Ontario N6H 4P2
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Montreal**Sales Office**

Digital Equipment of Canada, Ltd.
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St. Laurent, Quebec H4T 1V3
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Digital Equipment of Canada, Ltd.
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Ottawa, Ontario K1S 5H4
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2025 Lavoisier, Suite 115
Parc Jean-Talon North
Ste-Foy, Quebec G1N 4L6
Canada

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Digital Equipment of Canada, Ltd.
418 McDonald St.
Regina, Saskatchewan S4N 6E1
Canada

Rexdale**Sales Office**

Digital Equipment of Canada, Ltd.
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Rexdale, Ontario M9W 5Y5
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10711 Cambie Rd., Suite 130
Richmond, British Columbia V6X
3C9
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Remote Service Point

Digital Equipment of Canada, Ltd.
373 Videt St.
Suite D1
Sarnia, Ontario N7T 2V3
Canada

Saskatoon

Remote Service Point

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Bay 1, 501 45th St. West
Saskatoon, Saskatchewan S7L 5Z9
Canada

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Winnipeg

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Winnipeg, Manitoba R3H 0X4
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Santiago Distributor

SONDA LTDA
Teatinos 574
Santiago
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Piso 10
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Gentofte

Sales Office

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Dokki
ET-Cairo
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Field Service Office

Digital Equipment France
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Les Grands Galands
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F-06700 St. Laurent Du Var
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D-2000 Hamburg 6
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Digital Equipment GMBH
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Munich

Educational Services Center
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D-8000 Munich 40
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Field Service/Sales Office
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Backbay Reclamation
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Nihon Digital Equipment
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2-23-1 Kanda Awajicho
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Field Service Office

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Product Repair Center

Digital Equipment B.V.

Produktieweg 1

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The Netherlands

Nieuwegein

Educational Services Center

Digital Equipment B.V.

Ratelaar 38

NL-3434 Nieuwegein

The Netherlands

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Digital Equipment B.V.

Raadhuislaan 23

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The Netherlands

Utrecht*Sales Office*

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The Netherlands

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England

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Customer Service

Technical Centre

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Jay's Close

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Belfast

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Digital Equipment Co. Ltd.

Belfast-Rushmere House

46 Cadogan Park

Belfast BT9 6HH

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West Midlands B72 1PD

England

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Reading*Educational Services Center*

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Butts Centre
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United Kingdom

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ALL-IN-1 • Office & Information Systems

Reader's Comments

Would you please take a moment to answer a few market research questions for us:

1. Are you planning an office system purchase within the next six months?

☐ Yes ☐ No

If yes, do you have an allocated budget for this purchase?

☐ Yes, how much _____ ☐ No

2. How would you best describe the industry/organization you work in?

3. What kind/brand of office equipment do you work with today?

☐ I'd like to see what an ALL-IN-1 System can do for me.

☐ I'm interested in attending a seminar on _____

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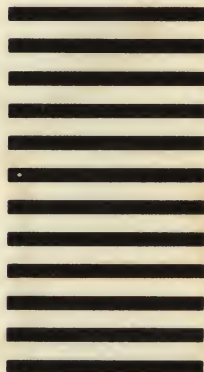
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